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FLORA OF YUCATAN

Paul C. Standley

Soon after the organization of Field Museum of Natural History, in 1893, the Curator of the Department of Botany, the late Dr. Charles F. Millspaugh, became interested in the botanical exploration of the Yucatan Peninsula. It would have been difficult to choose a part of tropical America less known botanically or, probably, one which would prove more interesting. Practically nothing was known at that time of the plants inhabiting the limestone plains and low hills of Yucatan. Today we are far from possessing a complete knowledge of the Yucatan flora, but what information we do have—a very respectable amount, as the ensuing pages will prove—is the result almost wholly of the work of two men, Dr. Millspaugh and Dr. George F. Gaumer, performed with the support of Field Museum.

Dr. Millspaugh made two visits to Yucatan in order to collect plants. Dr. Gaumer, who died as recently as September 2, 1929, spent forty-five years in the state, and throughout this time he maintained an interest in natural history. A list of his earliest plant collections, from Cozumel Island, was inserted in the fourth and supplemental volume of Hemsley's Botany of Salvin and Godman's monumental *Biologia Centrali-Americana*. For years he collected intermittently, but when, through Dr. Millspaugh's agency, his work was financed by Field Museum, he devoted an increased amount of his time to botanical exploration of Yucatan and Quintana Roo. As a result, a huge quantity of specimens was assembled. Some of these were gathered personally by Dr. Gaumer, and others under his supervision by his sons or by native collectors.

Dr. Gaumer's botanical activities continued for more than thirty years, until his work was made difficult by physical infirmities resulting from advancing years, about the time of Dr. Millspaugh's death. He collected with some degree of completeness over much of Yucatan and the adjacent portions of Quintana Roo. Of the flora of the southern part of the latter territory, unfortunately, we still know absolutely nothing, except by inference.

Dr. Gaumer did more than merely assemble a collection of dried herbarium specimens. Himself a practising physician, he was keenly interested in medicinal properties attributed to the plants by the native people. He gathered assiduously all available data upon the

subject, and himself employed the local plants in treating his patients. His eulogies of the supposed therapeutic properties of certain members of the Yucatan flora, especially when further embellished by Dr. Millspaugh's own somewhat unorthodox medical views, arouse mild amusement. It is scarcely necessary to caution the reader that the medicinal properties ascribed to certain plants in the present flora are to be taken with liberal reservations. It is unfortunate only that it is impossible to determine from the notes at the writer's disposal which of the supposed curative properties of the plants are ascribed to them by the Yucatecans, and which by Dr. Gaumer. The former would have a real interest from a strictly ethnological standpoint.

Dr. Gaumer exerted himself, also, to obtain data regarding general economic applications of the plants, and here he was eminently successful. It is to be regretted that he was not a trained ethnologist, that he might have searched for possible remnants of ritual uses of the plants, or have investigated their place, if any, in folk lore.

As is well known, the majority of the present-day Yucatecans speak Maya rather than Spanish, some of them nothing at all of the latter language. Dr. Gaumer devoted a great deal of time to learning the Maya plant names, and his success is indicated by the fact that a Maya name is recorded here for nearly every species. Ralph L. Roys, who has engaged in study of Maya botany, reports that the names recorded by Dr. Gaumer are usually well written, and apparently exact. Some of the notes to which I have had access state that his plan in assembling these names was to show the plants to several Mayas, record the names they gave, and then select the one he considered most apt or appropriate. This method is not to be commended. It would have been preferable to report all the names communicated by the informants, and let the reader make his own selection, perhaps with an indication of the preference of the compiler. If such a complete list had been preserved, probably it would now be possible to identify some of the perplexing names of the old medical works.

It would be unjust to leave the subject of the Gaumer plants without mentioning their handling after receipt in Chicago. The large collections formed by Dr. Gaumer included great numbers of duplicates, especially of his later series. At the time of Dr. Millspaugh's death, these remained unorganized, along with many duplicates of his earlier years. In many or most cases the data for the

numbers had to be sought with the original specimens distributed into the herbarium of Field Museum.

Assistant Curator J. Francis Macbride undertook the organization of this imposing mass of duplicates, and to him and to Miss Edith M. Vincent, who assisted in the work, are indebted the herbaria which have received sets of this important series, containing so many endemic or rare species. The immense amount of uninteresting and tedious labor involved in such a task can be appreciated only by one who, like the present writer, has himself undertaken such a discouraging and thankless task. However, the work finally was brought to an end, and the material all labeled and arranged in sets, most of which have been distributed to the principal herbaria of the United States and Europe.

A word of explanation might be offered regarding the quality of some of the material included in the sets as distributed. They contained specimens of many common species, because it is of such plants that most floras are chiefly composed. In some instances material of rare or endemic species that had been somewhat damaged by insects was included, since it was believed that most herbaria would prefer to have even an inferior specimen of a rare species rather than no representation at all. The quality of the material of this sort, if it needs any defense or apology, is not the fault of the one who prepared it for distribution. The insect damage had been done before the collection came to his attention, and in preparing the sets for distribution he properly destroyed a vast amount of material badly damaged or representing common weedy species.

PREPARATION AND SCOPE OF THE FLORA

Dr. Millspaugh's papers upon the flora of Yucatan fill the greater portion of the first two volumes of the Botanical Series of Field Museum, and constitute the first two parts of the third volume, of which the present flora forms the concluding part. In these papers he brought together previously published reports of Yucatan plants, and added the records based upon the collections of Dr. Gaumer and himself, as well as those of the few other collectors who visited the region.

It was his intention to publish a complete flora of Yucatan, and a beginning was made in the third volume, with accounts of the ferns, grasses, and sedges. A few drawings were prepared to illustrate further parts.

At the time of Dr. Millspaugh's death there had accumulated a large quantity of the Gaumer collections which never had been studied or determined. By the Director of Field Museum the present writer, then at the United States National Museum, was requested to determine the collections and to prepare an enumeration of them. The list here published is the result. The greater part of it was written at the National Museum and during six weeks spent at Field Museum in September and October, 1927.

The manuscript has lain almost complete, except for the introduction and certain final touches of minor importance, ever since the writer became a member of the staff of Field Museum, in June, 1928. Only a certain innate indolence has delayed its final submission to the printer until the present time.

The very large accumulations of Gaumer plants required a long time for their determination. They consisted principally of material gathered from 1917 to 1921, but included also many earlier numbers, fragmentary or otherwise difficult, which never had been identified.

Dr. Millspaugh himself in his later papers changed many of his early determinations, and recent systematic work necessitates many other corrections. In the following list an attempt has been made to indicate all published Yucatan reports of species incorrectly named. In a few instances, especially in the case of Seler plants, of which there is only a partial set in the herbarium of Field Museum, it has been impossible to verify or correct the records, because the specimens on which they were based could not be found.

In listing the specific names of the Yucatan flora full bibliographic citations are given only for species described from the region. For these it has been the intention to report every generic transfer to which they have been subjected. For other species listed there have been cited, as a rule, only such synonyms as have been employed in reporting Yucatan material, besides erroneous determinations, when these have been discovered.

In order to lessen the space required for this tiresome and, like all synonymy, useless repetition of discarded names, certain greatly abbreviated forms have been used for citation of works to which most frequent reference is made. These abbreviations are the following: FMB., Field Museum of Natural History, Botanical Series; BJE., Engler's Botanische Jahrbücher; CNH., Contributions from the United States National Herbarium.

In the preparation of this enumeration of the Yucatan flora an attempt has been made to examine every specimen from the region

in the herbarium of Field Museum and in the United States National Herbarium. The former contains by far the largest and most comprehensive representation of the Yucatan flora, and the few other collections deposited elsewhere probably would add little or nothing to the present list.

The word "Yucatan" is used here in a broad sense which is far from accurate from a political standpoint. This flora has been planned to cover all parts of the Yucatan Peninsula lying in Mexico, that is, the states of Campeche and Yucatan and the territory of Quintana Roo. The term "Yucatan" as used in Dr. Millspaugh's papers included Yucatan and Quintana Roo, the latter territory not having been created politically at that time.

As a matter of fact, the use of the word "Yucatan" in the title is not at all inappropriate, because most of the Gaumer collections were made in that state, with only occasional forays into Quintana Roo, a region shunned even at present, for the most part, as it has been for the past hundred years, by all except its sturdy Maya inhabitants, who are far from hospitable toward strangers. Of the flora of Campeche our present knowledge probably could be recorded on a single page of not very small print.

In order to bring within the present paper some species certain to occur in the outskirts of the three states which it is aimed to cover, there have been included a few records from collections just outside the proper limits of the flora. A number of plants found by Rovirosa on the border of Tabasco are enumerated, and a small number obtained by O. F. Cook in northern Petén, Guatemala.

The writer could add a substantial number of species which he is morally certain grow in southern Quintana Roo, but such a procedure would scarcely deserve approbation in a work supposedly scientific. If there had been available two years ago the collections now at hand from northern British Honduras, only a few miles away from Quintana Roo, I should have included that region in the flora of Yucatan.

GEOLOGY AND CLIMATE

The Yucatan Peninsula consists properly of the states of Yucatan and Campeche and the territory of Quintana Roo, in Mexico, the colony of British Honduras, and the Department of Petén, Guatemala. The present flora purports to deal only with the Mexican portion, which is remarkably uniform geologically and geographically.

The Mexican region consists of a great plain having an area of about 55,000 square miles, approximately the same as that of the state of Illinois. It is formed by a vast sheet of Recent limestone rock of porous and friable character. The northern part of the Peninsula is a uniform, almost level plain, but farther south the surface is undulating, with alternating depressions and low hills, which in Yucatan and Quintana Roo do not exceed an elevation of 275 meters, and in Campeche but slightly more. There are no mountains and no eruptive rocks. The beds of sedimentary rocks, mainly coralline limestone, are horizontal or only slightly tilted.

Data concerning climate are available only for Mérida, in northern Yucatan, where conditions doubtless are typical of those existing throughout the northern part of the Peninsula. The records which I have seen for this locality cover fifteen years. The annual mean temperature is 25.8° C. The highest temperature recorded was 40.8°, in March; the lowest 7.2°, in December, January, and February. The warmest months are March to October, the cooler ones November to February.

The average annual rainfall is 80.7 cm. The wet months are June to October, followed by a prolonged dry season, from November to May. None of the months are altogether rainless, the lowest average rainfall being that of March, with only 14 mm. According to all writers upon the region, the southern part of the Peninsula has a substantially greater rainfall, and doubtless a higher mean temperature.

Perhaps the most striking physiographic feature of Yucatan is the absence of surface streams. No permanent ones exist except in the extreme southwest and southeast. There are a few stream beds in which there is running water for a short time, but as soon as the rains cease the water quickly disappears. The limestone is so porous and the surface so level that rain water sinks immediately below the surface, where it forms underground reservoirs in the great caves which abound here.

These underground tanks, or *cenotes*, have always been the chief source of drinking water for the inhabitants. Frequently, especially in the more hilly regions, there are depressions lined with marl in which pools or small lakes are formed during the rains, to remain sometimes almost throughout the dry season. There are several permanent lakes of small or medium size. The best known is Lake Chichankanab, near the center of the Peninsula, whose water is

strongly alkaline. Farther south is Lake Bacalar, a salt-water lagoon about thirty-seven miles long and only one mile wide.

VEGETATION

Notwithstanding the considerable number of plants collected in Yucatan, we have scant information regarding the general aspect of the vegetation. The nature of the plant covering of the coastal dunes, rocks, and beaches it is easy to picture, because it must be like that existing elsewhere along the warmer parts of the Gulf Coast. In the dry region of the northern plains there are few large trees, with only occasional palms. Where not under cultivation, the land is covered with shrubs or small scrubby trees, many of them spiny, and most of them shedding their leaves during the dry season. A few cactuses are plentiful. It is here that henequen is cultivated so extensively.

In the central, undulating part of the Peninsula, where there is a substantially heavier rainfall, there are extensive forests, the trees, apparently, seldom of great size but often in dense stands. This part of the Peninsula, as well as thé southern portion, is but sparsely inhabited, by Maya Indians who have little intercourse with the settlements of the north.

The forests of Quintana Roo and Campeche yield many valuable woods and other products. They are the center of the logwood trade, formerly, at least, an industry of great commercial importance. The region is also the center of chicle production, and chicle gum is now its chief natural article of export. Large amounts of mahogany, Spanish cedar, and fustic have been exported, with smaller quantities of cacao, sarsaparilla, allspice, and rubber.

The most important article now exported is henequen fiber. Most of it is grown on the plains of Yucatan, and to this state it has long been its principal source of wealth. Without henequen the farmers of the United States as well as those of many other countries would find it difficult to harvest their wheat, for no satisfactory substitute ever has been found for it in the manufacture of binder twine.

Among the other agricultural products, maize still holds the eminent position which it has always held among the Mayas. There are grown, also, rice, beans, sugar cane, cotton, a great variety of tropical fruits, and many of the common vegetables of tropical and temperate climates.

RELATIONSHIPS OF THE YUCATAN FLORA

By its geological and physiographic features as well as by its human inhabitants the Yucatan Peninsula is sharply differentiated from the rest of Mexico. The interests and welfare of the Yucatecans have so little in common with central Mexico that on several occasions it has been proposed seriously that Yucatan should secede and form an independent country. Indeed, the state sometimes has functioned as a practically independent country, with scant regard to the wishes or mandates of the federal government.

Analytical study of the Yucatan flora confirms one's expectations that it should prove radically different from that of other portions of Mexico and Central America. The prevailing limestone, the absence of surface streams, and the long dry season, something quite unusual along the eastern coast, are a sufficient guarantee that the Yucatan plants will be different from those of neighboring countries.

There are many matters of plant distribution in Mexico and Central America which are hard to explain. In the mountains—not in the lowlands—of Salvador there have been collected several Yucatan species whose distribution, so far as known at present, is at least curious. Perhaps their ranges will appear natural enough, and continuous, when the intervening regions are better known.

A glance at the map will explain why Yucatan, jutting far out beyond the rest of Mexico, and almost reaching Cuba, should possess many species in common with the latter country, especially since their geological conditions are so similar. The writer has never been greatly impressed by any evidence of a close relationship between the floras of Mexico and the West Indies. Apparently there is none. In the case of Yucatan the conditions are different. Since there is no published list of the Cuban flora, it would be necessary to make a search throughout the herbarium in order to determine what percentage of the plants here listed is common to Cuba and Yucatan, and the time necessary for such a task might be spent more profitably in other work. It is evident to any one at all familiar with the flora of tropical North America that the percentage of such species is a very high one, higher, no doubt, than could be found elsewhere along the mainland.

In naming recent collections of British Honduras plants, I have been surprised many times, in attempting to determine some species evidently new to Central America, to discover that it was a well-

known Jamaican species, or else closely related to one. British Honduras seems to be the only region of Central America whose flora has pronounced Antillean affinities. It appears to be almost as much out of place in Central America as is that of Yucatan in Mexico.

In the following list there are enumerated not only the native and naturalized plants but also those in cultivation. For one visiting or living in a region, the cultivated plants are almost or quite as interesting as the native ones, and usually they include a large proportion of the species of economic importance. On this account they deserve a place in every flora.

This list includes 129 families, 667 genera, and 1,263 species. Subtracting the introduced elements, the native Yucatan flora, as known at present, consists of 557 genera and 1,068 species. The number of species certainly is not large, and compares very unfavorably with the flora of such a tropical region as the Panama Canal Zone, or a temperate area like the District of Columbia, each with only a fraction of the area of the Peninsula. The only conspicuously large Yucatan families are the following:

	Genera	Species
Leguminosae	44	119
Compositae	56	86
Euphorbiaceae	19	69
Gramineae	32	68

Perusal of the systematic list will reveal a surprisingly large number of species endemic in Yucatan. The total number of such plants is 185, or 17 per cent of the native flora. Particularly noteworthy are the Euphorbiaceae, with 39 per cent of the species confined to the region. I have considered those species which occur in northern British Honduras as endemic to the Peninsula. No doubt further exploration in neighboring territory will reduce the percentage of endemism, but it will always remain high for a continental area.

Three genera of the Rubiaceae and Compositae—*Asemnanthe*, *Goldmanella*, and *Plagiolophus*—are confined to the Peninsula.

There deserve mention, also, forty-two species (probably an even larger number, since they have not been verified carefully) which, in Mexico, are known only from Yucatan. Several of them are plants of the coastal dunes or rocks, some of them known only on the islands, and most of them are widespread West Indian species.

BOTANICAL EXPLORATION OF THE YUCATAN PENINSULA

Of the various floras prepared by the present writer, this is the only one covering a region in which he has not himself collected. His personal experience with the Yucatan flora is a remote and intangible one, consisting as it does of a view of the low green shore from the deck of a ship bound southward to Guatemala.

Yucatan collections available for study are rather extensive, those in the herbarium of Field Museum amounting to more than 7,000 specimens.

The coast of the Yucatan Peninsula was the first part of Mexico discovered by the Spaniards, but it is to be doubted that the earliest visitors were much interested in the vegetation, except as the tangled mangroves impeded their access to the shore. Many of the trees and plant products seen by Hernández de Córdoba and Juan de Grijalva and their men were already familiar to them from their residence in Cuba.

Of the peculiar products of Yucatan, logwood and mahogany must have been among the first to reach Europe. Logwood was shipped to Spain at a very early date. There are numerous pre-Linnaean references to it, and it is one of the two plants closely associated with Yucatan which are described by Linnaeus in the 1753 edition of the *Species plantarum*.

The first botanist who collected in the Yucatan Peninsula seems to have been William Houstoun. Several species which he obtained in Campeche are described by Philip Miller in 1768. In the *Nova genera et species* of Humboldt and Bonpland (1815–21) there are described several additional species from Campeche. It is not certain who collected them, but probably they were obtained by Humboldt and Bonpland while their ship lay in port, on the way from Veracruz to Cuba.

In 1835 Jean Jules Linden, en route to Veracruz, gathered about twenty-five species in Yucatan. The next collection recorded is that of Ezekiel Porter Johnson, who is said to have visited the region in 1848. His specimens, most of them in the herbarium of the New York Botanical Garden (they were sent to Dr. Torrey) and some in the Kew herbarium and the herbarium of Field Museum, are labeled as coming from "Yucatan and Tabasco." Since most of the species represented have not been found by other collectors in

Yucatan, it is suspected that most of them, at least, were obtained in Tabasco.

The first large collection of Yucatan plants was made in 1864–66 by Arthur Schott, who had been engaged by the Mexican government to make a geological survey of the Peninsula. His specimens, amounting to about 850 numbers, were distributed to various herbaria of the United States and Europe, but his own herbarium, containing the original set of specimens, was acquired some years ago by Field Museum.

The largest series obtained by any one collector in the region is that assembled by Dr. G. F. Gaumer, to which reference already has been made. Dr. Gaumer's first specimens were gathered in 1885–86 on Cozumel and other islands off the east coast, while he was engaged in collecting birds for Godman and Salvin. In those years he obtained 224 species of plants, which are listed by Hemsley in the fourth volume of the Botany of the *Biologia Centrali-Americana*. In 1895, through the influence of Dr. Millspaugh, Dr. Gaumer obtained about 600 numbers of plants, which were listed in the first volume of the Botanical Series of Field Museum. In later years, especially from 1917 to 1921, his collections were greatly increased. In the herbarium of Field Museum there are more than 5,400 specimens collected by Dr. Gaumer.

Porfirio Valdez, in 1887, made a small collection of plants, chiefly medicinal ones, about Progreso, Mérida, and Tikul, and Field Museum has 100 specimens which he collected in 1896.

In 1890 Witmer Stone, of the Philadelphia Academy of Sciences, while a member of a geological expedition conducted by Angelo Heilprin, gathered about 300 plants in northern Yucatan.

Dr. Charles F. Millspaugh, in January, 1894, collected about Chichen Itzá and on Cozumel and Mugeres islands. Again, in February and March, 1899, while a guest of Allison V. Armour on the yacht *Utowana*, he botanized about Chichen Itzá and Progreso and on Alacrán Shoals. His Yucatan collections in the herbarium of Field Museum amount to 620 sheets.

The same herbarium contains forty-six specimens collected in Yucatan in 1900 by Efraím Gutiérrez Rivas. E. A. Goldman, of the Bureau of Biological Survey, United States Department of Agriculture, visited Yucatan in 1901 in order to study the fauna. Incidentally to this zoological work, he made a small collection

of plants, of which there are fifty-three specimens in the Museum herbarium.

One of the larger collections of Yucatan plants is that made by Eduard Seler and his wife, Caecilia Seler. He was one of the foremost authorities upon the ethnology of Central America, and was interested also in its natural history. He collected in Yucatan in 1902–3, obtaining 236 numbers; in Yucatan and Campeche in the autumn of 1907; and in Yucatan again in the autumn of 1911. There are 172 specimens of his collections in Field Museum herbarium.

Dr. Jesse More Greenman collected in northern Yucatan for Field Museum in 1906, obtaining about 180 numbers of plants. Guy N. Collins, of the United States Department of Agriculture, visited the region in the winter of 1912–13. His original collection is in the United States National Museum, and twenty-five duplicates are in Field Museum.

In the summer of 1929 Dr. J. Becquaert collected about 100 numbers of plants for the Arnold Arboretum in northern Yucatan. A nearly complete series has been deposited in Field Museum.

Of Campeche plants Field Museum possesses only a few, collected by E. A. Goldman and by Eduard Seler. Probably no other herbarium contains many more, and the state is practically a virgin field for collectors.

The statement that this list of the plants of Yucatan is far from being a complete enumeration of the flora of the Peninsula may be made with all confidence. The chief collections made in the area have been gathered by a man who was scarcely a botanist, although evidently possessing a good general knowledge of plants.

Dr. Gaumer devoted little attention to the cryptogams, of which there must be several hundred species in the region. Even in the phanerogams it is certain that there must be much to be discovered. Further exploration should almost or quite double the number of species of Gramineae and Cyperaceae. A collection of only 100 numbers of plants gathered in the most frequented parts of Yucatan in 1929 contained three species of rather conspicuous plants not reported previously.

As has been remarked elsewhere, scarcely anything is known of the floras of Quintana Roo and Campeche. Having a heavier rainfall, and by all the fragmentary reports a much more luxuriant vegetation, they must have a richer flora than the state of Yucatan. I have little doubt, therefore, that the total flora of the whole Penin-

sula includes fully twice as many species of flowering plants as there are listed in the present enumeration.

It is not probable that the botanical exploration of the region will be completed in the near future. Botanists, at least modern ones, like other naturalists, choose the pleasant and agreeable regions in which to work rather than those of prime botanic interest. It is an easy matter to indicate on a map the areas of tropical America in which the richest results could be obtained, but try to find a botanist who will explore them. Collectors are not to be blamed harshly for such an attitude, since a visit to some of the most alluring localities would involve not only such bodily discomforts as mosquito and ant bites, or the occasional absence of fresh meat or hot milk, of which I have heard botanists complain, but a somewhat more real danger of disease and permanent disability or even death.

Quintana Roo is still a sparsely inhabited territory because of the unfriendliness of its few primitive inhabitants toward strangers. Moreover, it is reputed to be infested with malignant malaria. Campeche possesses large tracts difficult of access. It may be predicted with all confidence that for some time to come most botanists who visit the Yucatan Peninsula will continue, as heretofore, to confine their travels to the usual tourist routes of the state of Yucatan, or to the more easily accessible portions of northern British Honduras.

VERNACULAR NAMES

Under each species in the following list are cited the vernacular names recorded from the area under consideration. The names are of three languages, Maya, Spanish, and English. The Maya names are those used by the Maya-speaking natives of the Yucatan Peninsula, and are the ones first listed under the species. The Spanish names, preceded by the abbreviation "Sp.," are those reported as in use in Yucatan, Campeche, or Quintana Roo. In some instances names current in Tabasco also are listed, since they are likely to be employed in Campeche, even if not reported for that state. The English names, in most cases readily recognizable as such, are those used in British Honduras.

The majority of the Maya names here listed were collected by Dr. G. F. Gaumer and are included in his manuscript *Sinonimia científica y vulgar de las plantas yucatecas*, but others have been extracted from the works of various authors cited in the bibliography. Ralph L. Roys has been kind enough to examine the

lists, and has corrected some of the names, but it is not to be understood that he approves of all those cited. Some of these are indicated plainly as taken from the publications of certain writers, and these, even when obviously incorrect, have been included, so as to make a complete record of the Maya plant names found in literature.

Some of the Maya names are highly descriptive, and in certain instances they follow closely the derivation of Aztec names for the same or related plants. In only a few cases has the etymology of the names been indicated, because in few instances has it been explained by other writers, and the present writer's scant knowledge of the language is quite unequal to the dangerous task of suggesting meanings for the plant names.

There are recorded in old manuscripts and in various Maya dictionaries many plant names which have not been identified. A list of these is given, with the hope that future workers in the region may interest themselves in discovering their significance. One of the most prolific sources of plant names is the manuscript Motul Dictionary, mentioned in the bibliography.

The Maya language is spoken in the Yucatan Peninsula and even as far away as Chiapas. In Guatemala there are Indian tribes whose languages are closely related. Many plant names from their dialects have been cited on the succeeding pages, for comparison with the vernacular names of Yucatan.

In connection with some of the vernacular names abbreviations are used to indicate the regions from which these are reported. The abbreviations are self-explanatory to one familiar with the local geography: Yuc., Yucatan; Camp., Campeche; Q. R., Quintana Roo; Tab., Tabasco; and B. H., British Honduras.

MAYA BOTANICAL TERMS

The Maya language contains a large number of words relating to plants, not so large a number as the Nahuatl tongue, but nevertheless a surprisingly rich vocabulary, as one may learn by glancing over the pages of any Maya dictionary. Such an extensive botanical terminology proves that these people were and are on intimate terms with the plants growing about them.

It may be of interest to make reference here to some of the general Maya terms relating to plants and their parts. Such words,

as found in the dictionaries, are insignificant in number in comparison with those of the extensive Nahuatl vocabularies.

Xiu. Herb or plant.

Che. Tree or wood. The Motul Dictionary gives as synonyms *cheel, cheil, chelel,* and *chelil.* The word *cheel* signifies also "wood" or "trunk."

Ak, akil. Vine.

Zic. Firewood.

Sool. Bark. The Motul Dictionary defines *coo* as "corteza sacada del árbol, para sogas," and *hool* as tough bark used for tying. *Upach che* also is defined as "bark."

Chilib. Branches or stems of trees or herbs.

Chilibche. A leafless tree with many branches.

Kab. A tree branch.

Ol. A young shoot or branch.

Kix, kiix. Spine or thorn.

Motz. Root.

Ui. A thick, fleshy root or bulb.

Le, ual. Leaf.

Alamil. Sprouts.

Canil. Sprouts or offshoots from the roots of plants.

Toopp. Flower bud.

Nicte, nic. Flower.

Lol. A large flower.

Bab. A cluster of fruits, such as grapes, coconuts, bananas, cotton, or beans.

Ich. Fruit.

Pacax. Fresh seed of melons, beans, maize, etc. (Motul Dictionary).

Nek. Seed or stone of a fruit.

UNIDENTIFIED VERNACULAR NAMES

In the various publications relating to Yucatan, especially in medical literature and manuscripts and in the dictionaries, there are listed many Maya plant names, unassociated with their Latin designations. These are listed here, in the hope that they may attract the interest of some resident or visiting botanist or ethnologist, who may exert himself to learn whether they are still current. If so, herbarium specimens of them should be procured, so that they may be identified. Some of the names are important, and their determination would be of great interest both ethnologically and botanically.

Abal-ac.

Abaxtut. A tree.

Ac. A tall grass with broad leaves which sometimes are used for thatching.

Ac-aban.

Acal.

Acam. Gann states that the leaves are applied hot to reduce swelling and relieve pain in the case of enlargement of the spleen and liver.

Acam-xiu.

Acan. Also written *ak-can.* According to Pérez, an herb with cordate leaves and with milky sap which was used to cure toothache and snake bites. Called also *yaax-acan.*

Acanceh. A spreading herb.

Acche. Certain herbs whose leaves are eaten by the Indians in time of famine, and from whose flowers the bees make honey (Motul Dict.).

Achaban. An herb with offensive odor, but useful for flavoring food (Motul Dict.).

Ahauche. Certain trees without fruit from which they make ax handles, and their roots if chewed take away pains of the stomach (Motul Dict.).

Ahchacuech. A tree and its fruit, a kind of *kumche* (Motul Dict.). Perhaps a species of *Crescentia.*

Ah-chicam-kuch.

Ah-chuch.

Ahich. A fruit tree (Motul Dict.).

Ahichilche. A fruit tree (Motul Dict.).

Ahkiixche, ahkiixilche. A spiny tree (Motul Dict.). Perhaps a generic term for spiny trees.

Ahnacchacchu. Large gourds used to hold water (Motul Dict.). Perhaps a cucurbit.

Ah-tab.

Ah-tukub.

Alegría. Sp. A tree of Quintana Roo.

Am-ak. Probably a cactus.

Amakil. An herb, used medicinally; said to resemble sarsaparilla, and perhaps a species of *Smilax.*

Amcan-ak.

Amcan-xiu.

Anal-kak. Possibly *Asclepias curassavica.*

Anal-xiu. Perhaps *Asclepias curassavica.*

Apche. A tree.

Arbol de corcho. Sp. A tree of Quintana Roo, with a trunk 30 cm. or more in diameter; used for construction purposes.

Arrayán. Sp. A tree of Quintana Roo with a trunk 30 cm. in diameter; wood used for cabinet work and construction.

Babtun. A plant with broad leaves, bearing certain *mazorcas* which are eaten by pigs; root eaten by the Indians in time of famine (Motul Dict.).

Bacche. A tree.

Bahain, babain.

Bataban. A vine with white flowers; used as a remedy for fevers and other diseases.

Beescan. A vine, used medicinally.

Bez-can.

Bich-coc.

Bilim-coc.

Bob. A tree with large leaves (Motul Dict.).

Bob-chich.

Bobote-ak.

Bocanche. A tree whose leaves are used medicinally.

Boloconte. Said to be a very common tree of Tabasco, with small red fruits; reported also from Yucatan.

Boloncote. A tree, probably the same as the preceding.

Bolon couch. Probably the same as *bolon-uoh.* A remedy for fevers.

Bolonhobon. Called also *yalahobon.* A vine with yellow flowers.

Bolon-uoh.

Boxek. A timber tree.

Boxhich. A timber tree.

Boxhocab. A timber tree.

Boxsachec-che. A timber tree.

Boxzinic-che. A timber tree.

Buhum-kak, buhum-coc.

Bulceh. An herb growing along seashores.

Buluchcaan. "Bálsamo o liquidámbar —y unas manzanillas de esta tierra" (Motul Dict.).

Butz-coc. A medicinal plant.

Buul-che.

Cabacche. The tree which gives the gum called *chox* (Motul Dict.).

Cabalchi. An emetic herb with flowers like those of *nancen* (Pérez).

Cabalkin. A small, medicinal plant with small leaves and flesh-colored flowers.

Cabal-kopte.

Cabalkuiche. A low, medicinal plant with the odor of *cedro.*

Cabal-put.

Cabal-zilil.

Cabal-ziz.

Cacalia. Sp. A tree of Quintana Roo.

Cacaté. "Fire-tree." A giant tree of Chiapas and Tabasco. The white, bitter kernels of the hard fruits are cooked with salt and eaten.

Cahum. A tree.

Cal-pakam. Probably a cactus.

Campel-tsu. A vine with medicinal properties.

Canacin. A timber tree.

Can-ak.

Canal-hulub.

Canbal-zac.

Canche, cocche. An herb, a remedy for asthma and other affections.

Canela de cuyo. Sp. A timber tree.

Can-taa-uii.

Cante-tsu.

Cantibte-ak. A vine.

Caracolillo. Sp. A tree of Quintana Roo.

Cataox. A tree of Quintana Roo.

Ceh-che.

Ceh-chikin.

Cencerro. Sp. A timber tree.

Cib-ak.

Cib-che. A medicinal tree. Perhaps *Protium.*

Cicim kuch. A medicinal herb.

Cihom. A tree whose leaves were scattered in the temple courts when children were baptized (Landa).

Ciruelillo. Sp. A timber tree.

Citam-ac.

Coc-aac.

Coc-ak.

Cocom. A vine with yellow flowers.

Copal gomoso. Sp. A tree with medicinal properties.

Corales-ak. Sp. and Maya. A prostrate herb; leaves small, pale; flowers white; roots red like coral; sap milky. An infusion of the root is applied as a remedy for erysipelas (Cuevas).

Co-tzimin.

Cuchil-uc. A medicinal herb.

Cum-kanan.

Cuntan.

Cup-kak, cup-che.

Cutsuc. The wood, ground into a paste, is applied to the heads of small children suffering from fevers and convulsions (Gann).

Cuxum-che.

Cuyum-che. The same as *cib-che.*

Chac. A timber tree.

Chacab. A timber tree.

Chacá blanco. Maya and Sp. A tree of Quintana Roo.

Chacahuate. A timber tree.

Chac ak. Same as *cacleumak.* A medicinal vine.

Chacal. A timber tree.

Chacam-che.

Chac-biken.

Chacbohon. A timber tree.

Chac-cancel-xiu. A medicinal plant with milky sap.

Chac-catzim. Probably one of the Leguminosae.

Chac-chimtok.

Chac-chixixmo, chicixmo. A shrub with milky sap; a remedy for erysipelas (Cuevas).

Chac-chom. Perhaps a bromeliad.

Chach. An herb used as a yellow dye.

Chac-hulubtekaak. Called also *hulubte, anal, xpolcutzil.* A medicinal plant with milky sap and small, pink and yellow flowers. Milk administered for affections of the spleen; crushed leaves applied as poultices to relieve erysipelas and inflammation (Cuevas). According to Cuevas, the plant belongs to the Apocynaceae.

Chac-kuch.

Chac-kuxub.

Chac-le-onob.

Chac-leum-ak.

Chac-lubte-on.

Chac-lutz ubteob.

Chac-mul.

Chac mulah kak. Called also *mapche.*

Chac-nich-max.

Chac-pichi. Pichi is the guava.

Chac-sabacche. A timber tree.

Chactam. A timber tree.

Chac-tez.

Chac-xicin-che.

Chac-ya.

Chaczaum. A medicinal herb.

Chac-zubin-che.

Chaczuk. A low shrub with linear leaves and small, pinkish flowers; used medicinally (Cuevas).

Chake. A timber tree.

Chakni. A tree of Quintana Roo.

Chechen blanco. Maya and Sp. A tree of Quintana Roo. *Chechen* is *Metopium.*

Chem-chac-che-ak.

Che-tulub.

Chicbul-can.

Chich.

Chicharillo. Sp. A timber tree.

Chicix-me-ak.

Chicix-mo. A plant with milky sap.

Chic-kak.

Chic kuk. A medicinal herb.

Chikec. A timber tree.

Chilim-can.

Chimtok. Reported as a medicinal herb. Also as a tree with strong wood good for construction purposes. A decoction of the bark with alum is used to harden the gums.

China amarilla. Sp. A tree of Quintana Roo, the trunk 20 cm. or less in diameter. Wood used for cabinet work.

Chintok. A timber tree. Reported also as *chintoc.*

Chin-uoh.

Chipororo. A plant with edible fruit; root used medicinally. Reported from the Bacalar region. The name evidently is not Maya.

Chiuoh-kaak. A small plant of the form of a black spider; leaves thick; has no flowers or fruit. Root a remedy for gangrene (Cuevas).

Cho. A tree, probably one of the Bombacaceae. Used as a remedy for fevers.

Choc. A vine.

Choch. A tree and its fruit (Pérez).

Choche. A timber tree.

Chochyuc. A timber tree.

Chokobcaat. A large tree with diuretic properties.

Cholul. A tree.

Choo.

Chooc. A timber tree.

Chotche. A tree.

Chox. Gum of the tree called *cabacche;* mixed with *nin* and *tahte* the Indian women used it for removing hair from their bodies (Motul Dict.).

Chuenche. A tree.

Chulceh.

Chulche. A medicinal shrub.

Chulinte. A tree.

Chunun. A medicinal tree.

Chutte. A tree of Chiapas (Maler).

Chuy-che.

Dzidzilche. A timber tree.

Dzuyu. A timber tree.

Ebano. Sp. A tree of Quintana Roo. Wood used for cabinet work.

Ek-huleb.

Ek-lum-chac.

Ek-mayil-ak.

Ek-muyal-ak. A vine, employed as a remedy for blindness.

Ek-teel.

Elemuy box. A timber tree. *Elemuy* is *Guatteria leiophylla.*

Ep-che.

Escobetilla. Sp. A tree of Quintana Roo.

Granadillo. Sp. A tree of Quintana Roo, the trunk 30 cm. or less in diameter. Wood used for cabinet work.

Guayabillo. Sp. A tree of Quintana Roo.

Guayacán negro. Sp. A timber tree.

Guayacte. A tree of Quintana Roo.

Guayate. A tree of Quintana Roo.

Guayuncox. A timber tree.

Ha. "An herb with which the Indians wash their heads" (Pérez).

Haa. "An herb whose seeds or fruits serve as soap" (Motul Dict.).

Haaz-can.

Haaz-maax.

Haaz-max-che.

Haban can. A medicinal herb.

Haban-che.

Hacay.

Haití. Sp.(?) A timber tree.

Halab-che or *ik-che.*

Hasche. A timber tree.

Haz-ak.

Haz max. "This shrub is so called because the herbalists say that the monkeys, when their children anger them, beat them with its branches." Used medicinally.

Hiail.

Hibin-ha. An aquatic plant with large, smooth leaves. Used medicinally.

Hinim.

Hmuc. A vine.

Hobnil-haa.

Homa. A gourd.

Hom-toloc.

Ho-ual.

Huk-chi.

Hul-im-kak.

Hulub. A plant whose leaves are used in place of cord for stringing fish.

Humpetskin. A tree of Chiapas with showy, yellow flowers (Maler).

Hunab-izootz. A "parasite" on trees. An infusion of the plant is applied to the hair as a tonic (Cuevas).

Hun-chac.

Hunpetskin-xiu.

Huuhub. A tree.

Huun-can.

Ic-bach.

Ic-che.

Ich-huh. "Iguana eye." So called because its flower resembles an iguana's eye. Medicinal. Perhaps a *Eugenia.*

Ik-ak.

Ipsac. A timber tree.

Itz-chac.

Itzin-can.

Ix-bacal-ac.

Ix-bibiz-luumil.

Ix-cabal-chi.

Ix-cabal-chun-kak.

Ix-cabal-kak.

Ix-canzel-ak.

Ix-canzel-xiu.

Ix-chilim, ix-chilim-kak.

Ixchuch. "A medicinal herb. If its juice is placed in the right ear of a scrofulous person the day of the conjunction of the moon, and on the following conjunction in the other ear, the scrofulous swellings disappear. The plant also reduces swellings, if it is placed, moistened with its juice, upon them" (Motul Dict.).

Ix chui che. A medicinal vine growing over trees.

Ix-cotz-cab-na.

Ix-hal-kin.

Ix-hoch-che.

Ix hunpetzkin ak. Said to be similar to *Aloe.*

Ix-hun-uoh.

Ix-hutul-ek or *zac-hutul-ek.*

Iximche. A tree.

Ix-kakal-cab.

Ix-kan-haaz.

Ixkaxi, ixchel. An herb used to cure swellings (Pérez).

Ix kaxil chel. A vine, the same as *ix kaxil ku.*

Ix-kin-uoh.

Ix-mac-hol-cab.

Ix-mamac-lumil.

Ix-mom-nicte.

Ix-much.

Ix nech bac che.

Ix-nuche.

Ix-och-can.

Ix-tibib-ak.

Ix-tsoc-chakanil.

Ix-tsui-can.

Ix tuab. Sp. *Cadañera.* A medicinal shrub.

Ix-tu-ak.

Ix-tulix-hobon.

Ix-tuu-canil.

Iztahte. A tree producing very fragrant resin (Landa).

Izte.

Jabalí. Sp. A tree of Quintana Roo.

Jahua. Sp. A timber tree.

Jobillo. Sp. A timber tree.

Joyillo. Sp. A tree.

Kabulche. A timber tree.

Kamaz-can-ak.

Kambulche. A timber tree.

Kampac. A tree of Petén "on whose bark the Indians sleep" (Motul Dict.).

Kampocolche. A medicinal tree with small leaves, yellow flowers, and small, yellow fruits (Cuevas).

Kanab-yuc.

Kanal-zin.

Kanasin. A tree with fine yellow wood.

Kan-chikin-ak.

Kanchikinche. A medicinal tree.

Kan-coc.

Kan-coc-che.

Kan-mucuy-che.

Kan-mucuy-coc. Called also *chac-ak.* A medicinal vine.

Kante. A tree with yellow flowers (in Petén, according to Maler). In Guatemala the name is given to *Gliricidia.* The Motul Dictionary states that the roots of *kante* are used as a yellow dye.

Kante-ceh.

Kapab-yuc.

Katabox. A timber tree.

Katalox. A timber tree.

Kax. A tree.

Kaxab yuc. A vine. Eaten by horses.

Kaxil. A timber tree.

Kaxil-ix-chel. A vine.

Kaxil ku. A medicinal vine.

Kaxixchel. A medicinal vine.

Keb. A tree parasite.

Kik-aban.

Kik-ni-och.

Kinim. A tree, probably *Spondias.*

Kintal. A small, medicinal plant whose leaves are sweet when chewed.

Kisiyuc. A timber tree.

Kixche. A timber tree.

Kix haban. A tree.

Kokob ak. Called also *xtuchi tunich.* A remedy for headache and other pains.

Kokobche. A shrub with aromatic leaves; used medicinally.

Kom-kuch.

Kukliz-cab.

Kun-can, kum-can.

Kuxub-ak.

Kuxub-che. A tree with aromatic leaves and small, white flowers; a remedy for jaundice (Cuevas).

Kuxub-ic.

Lakintan. An herb, applied moistened as a remedy for swellings.

Lakintan-mo.

Lamparones-ak. Sp. and Maya. A vine with milky sap. A decoction of the plant is used to cleanse ulcers.

Laurelillo. Sp. A tree of Quintana Roo.

Lec. A kind of gourd used for making dishes or other kitchen utensils.

Leche. A tree with large leaves, growing in Chiapas and Guatemala (Maler).

Likintan. Probably the same as *lakintan.*

Lithibzots. "A plant whose seeds resemble bats hanging by their claws" (Pérez). The name signifies "bat on its toes." The plant is perhaps a *Bidens.*

Loth-coc.

Luin. A timber tree.

Lumche. A timber tree.

Macal-cox.

Macal-ku.

Macap-lum.

Macap-na.

Machiche. A timber tree.

Machicho. Sp.(?) A timber tree.

Mac-much. "Toad-stopper." A shrub of wet places, with hairy leaves like those of cotton; flowers yellow, in racemes. The ancient Mayas made clay jars in the form of a toad in which they kept seeds of corn and other plants for sowing. For covering these receptacles they used the wood of this plant, which is much like cork. The wood was used also to make rough furniture in the huts (Cuevas). Perhaps *Cochlospermum.*

Maco. Sp.(?) A timber tree.

Mac-oc.

Malacate. Sp. A tree of Quintana Roo.

Mangle amarillo. Sp. A tree of Quintana Roo. Bark used for tanning, wood for construction purposes.

Mangle negro. Sp. A tree of Quintana Roo. Bark used for tanning, wood for construction purposes.

Mante. A tree of Quintana Roo.

Mastote. Name probably not Maya. A timber tree.

Matzab chicbul. An herb with burs which stick to clothing.

Matzab kuch. A medicinal herb.

Mau. Defined by Pérez as "pita," a word which may mean any one of several things. Perhaps only cord or twine.

Max-ak.

Max cal. An herb, said to be similar to *Aloe* or maguey (*Agave*). The name signifies "monkey throat," and is said to refer to the appearance of the root.

Maxcalcots. An herb said to be taken to produce abortion; used also as a remedy for swellings (Motul Dict.).

Mehen-xaan. A small palm, perhaps *Chamaedorea.*

Muc ceh. An herb used in witchcraft.

Much. A medicinal plant (Cuevas).

Muc-ta.

Mucuy-che. "Dove-tree."

Mukay-che. Perhaps *Nopalea,* since *mukay* signifies "cochineal."

Mukay-onob-can.

Mul och. An herb.

Musmacoy. A timber tree.

Na.

Nach-bacil-che.

Nantaha.

Napoche. A timber tree.

Nazareno. Sp. A tree of Quintana Roo, with a trunk about 30 cm. in diameter. Wood used for cabinet work.

Nech lum, nach lum. A tree.

Nemax-ak.

Nemax-xiu. Perhaps the same as *nemax, Heliotropium.*

Ne-tab.

Ni-ax.

Nictac.

Nitze. A tree of Quintana Roo.
Nohol-aban.
Nok-ak.

Ojite. Sp. A tree of Quintana Roo.
Ojo-ak. Sp. and Maya.
Ojoxiu. Sp. and Maya. A medicinal herb with purple flowers (Cuevas).
Olualuc. A tree.
Opche-hum. A timber tree.

Pach-max. A timber tree.
Pahte.
Pahtub.
Palo blanco. Sp. A tree of Quintana Roo.
Palobravo. Sp. A tree of Quintana Roo.
Palo de sangre. Sp. A tree of Quintana Roo.
Palo sandiego. Sp. A tree of Quintana Roo.
Pats-can.
Paxalche. A timber tree.
Pechnox. A timber tree.
Pek-xiu. The same as *tseb-xiu.*
Pocte. A timber tree.
Polche. A timber tree.
Pol-kokob.
Pop.
Pop-che.
Popiste. A timber tree.
Popistle. A timber tree.
Popte.
Ppoppox-can.
Pugasqui. A timber tree.
Pulul. A kind of fruit (Brasseur de Bourbourg).
Putsub-che.

Quiebrahacha. Sp. A tree of Quintana Roo.
Quina. Sp. A medicinal tree of Quintana Roo.

Ramón blanco. Sp. A tree of Quintana Roo. Wood used for construction and cabinet work. Perhaps one of the Moraceae, since the common *ramón* is *Brosimum Alicastrum.*
Roble blanco. Sp. A timber tree.

Sacauah. A tree of the Bacalar region, possibly *Podocarpus.*
Sacbacelcan, sachacalcan. A large shrub with long leaves and small, blue flowers; a remedy for snake bites (Cuevas). Gaumer uses the first name for *Cereus Donkelaarii.*
Sachitziche. A timber tree.
Sac-nabche. A tree.
Sacna-che. A tree, used medicinally (Cuevas).
Sacsilil. A timber tree.
Sactaman. A timber tree.
Sac-tinte. A medium-sized tree whose bark yields a fiber. The seeds, pulverized and boiled, are considered an excellent remedy for disorders of the stomach.
Sakanche. A tree of Quintana Roo.
Sakiab. A tree of Quintana Roo.
Sandiego. Sp. A tree of Quintana Roo.
Sasquiche. A timber tree.
Sibul. A timber tree.
Sicil-much. A spiny vine with white flowers. Said to have emollient properties; leaves and root pulverized, mixed with oil, and applied externally as a remedy for cutaneous diseases.
Sisinicche. A timber tree.
Soscil-chac. A vine; used medicinally (Cuevas).
Sosolokricte. A tree of Quintana Roo.
Subidtul. A timber tree.
Sucte. A tree.
Sufre y calla. Sp. A tree of Quintana Roo.

Taa-ceh.
Taan-coc.
Taan-kozen.
Taastab. A timber tree.
Taa-tzimimin.
Tah kee. A spiny vine with white flowers. Reputed to have antisyphilitic properties.
Tahte.
Tahua. A timber tree.
Takin-che. A shrub with rounded leaves and bright yellow flowers. Used medicinally (Cuevas).
Talega de pedernal. Sp. A timber tree.
Taman-can.
Taman-cooc. A medicinal herb.
Tan-ceh.
Tan tsunun. A medicinal herb. Perhaps a *Euphorbia* of the *Chamaesyce* group.

Tapoch. A timber tree.

Taray. Sp. A tree.

Tasche. A timber tree.

Tastab. A tree of Quintana Roo.

Tatuan. A timber tree.

Te-ik.

Tela de cebolla. Sp. A timber tree.

Tel-ak.

Telcox. Said to be a shrub with spines on the stem and leaves; used medicinally (Cuevas).

Tel kuch. Called also *sicil pach.* An herb with fragrant leaves; used to clean the teeth.

Thax-ak.

Tibib-xiu.

Tinto verde. Sp. A timber tree.

Tok.

Tok-zuuc.

Too. An herb with broad leaves (Pérez).

Toon-can.

Toon-che.

Toon-tzimin.

Topoxte. A shrub with small, hollow fruits having a thin rind. When stepped upon, they burst with a slight detonation (Maler).

Tovillo. Sp. A timber tree.

Toztab.

Tseb-xiu.

Tsez-cat.

Tsilam. One of the important towns of Yucatan. Its name is derived, it is said, from that of a plant so called, known in Spanish as *pico de pollo,* and very ornamental.

Tsubac. A vine with small, white flowers (Cuevas).

Tsuhum-che.

Tsula.

Tsul-xiu.

Tsumyail. A vine with large leaves and yellow flowers (Cuevas).

Tsuts-mohoch, tsots-mohoch.

Tuhache. A timber tree.

Tulcozon, Turco-uzam.

Tulix-kik.

Tulum. A tree of Quintana Roo.

Tup.

Tup-palal.

Tuz-ik-che.

Tuz-ik-lum.

Tzaibacil. A small, medicinal herb.

Tzay-pach.

Tzemez-akab.

Tzic-aban.

Tziminche. A timber tree.

Tzotz-ceh.

Tzotz-kuyuch. A vine with leaves like those of the grape; fruit hairy; sap milky. Reported to have emollient properties (Cuevas).

Uayate. A timber tree.

Ucam. A medicinal plant.

Ucan. A tree of Petén with large, lanceolate leaves. The ashes with tallow are used in soap-making (Maler).

Um-can. A tree parasite.

Uruyam. A timber tree.

Uuas. A timber tree.

Uuayuncox. A timber tree.

Uvero. Sp. A tree of Quintana Roo.

Xah-ceh.

Xanab-chich.

Xay-ak. A vine.

Xcamuc-olal. A small plant with toothed leaves and clustered, purple flowers (Cuevas).

Xchache. A timber tree.

Xchocte. A timber tree.

Xco. A medicinal plant of Quintana Roo.

Xcuc-tsub. A shrub with small, round leaves and white flowers (Cuevas).

Xhantumbu. A plant used in decoction as a remedy for fevers.

Xhas-ak. A slender vine with aromatic, oval leaves and purple flowers (Cuevas).

Xhubche. A timber tree.

Xhulcu. A timber tree.

Xib-cel.

Xicin-ceh.

Xicin che. A fungus resembling ears, and growing on the trunks of trees.

Xicin-coh. A vine.

Xiuil tsac. A medicinal herb.

Xlabon-ak. A parasitic vine with thick, pale leaves (Cuevas).

Xloht-che. A small, woody plant (Cuevas).

Xnetab. A shrub of the coast; leaves with three or four leaflets like *ceiba,* but thicker (Cuevas).

Xopol. A medicinal plant.

Xponkanbul. A shrub with large, thick leaves and white flowers; sap milky (Cuevas).

Xtabyu. A timber tree.

Xtadzi. A timber tree.

Xtobyo. A timber tree.

Xtog. A medicinal plant of Quintana Roo.

Xtokoche. A timber tree.

Xtuciscan, putcan. A vine with tubers and milky sap (Cuevas).

Xtul-coson, Sp. *Malujo.* A vine with leaves like those of chile; flowers yellow, in racemes (Cuevas).

Xtuyache. A large tree with white flowers and round three-seeded fruit (Cuevas).

Xuaranchin. A vine with small, pink flowers (Cuevas).

Xul. "Un árbol de que se sacan ciertas varas para las casas palizas" (Motul Dict.).

Xul-ceh.

Xulinche. A timber tree.

Xulub-ceh.

Xuul. A timber tree; wood used for carts.

Yaak-ek. A tree.

Yakal-xiu. A small, medicinal plant (Cuevas).

Yakba-xiu.

Yaxul. A tree of Quintana Roo.

Yax-can-ak.

Yax-chacah.

Yax-cocay-ak.

Yax-ppehel-che.

Yaya. Sp.(?) A tree of Quintana Roo.

Yerba del sapo. Sp. A plant with thick, hairy leaves and yellow flowers (Cuevas).

Zabac nicte. A tree with red flowers, used medicinally.

Zacalbac. A medicinal herb.

Zac-beeb. Sp. *Zarza.* Used medicinally, especially as a remedy for syphilis.

Zac-beec.

Zac-che.

Zac-chucum. A medicinal tree with aromatic compound leaves and small flowers. Referred by Cuevas to the Leguminosae.

Zacchuenche. A tree.

Zac-chuen-che. A medicinal shrub.

Zac-ek. A timber tree.

Zac-ha-na. A tree of Cozumel Island, "under whose roots there is always a spring of pure, clear water" (La Plongeon).

Zache. An herb used to cure swellings (Motul Dict.).

Zac-kanan.

Zackintal. An herb of which horses are fond (Motul Dict.).

Zac kokob che. Called also *canche.* A shrub or small tree, a remedy for asthma.

Zacla. "A kind of nettle" (Motul Dict.).

Zac-lal.

Zac-leum-ak.

Zac-muyal-xiu.

Zac-ne-ceh.

Zac-tab-can.

Zac-tsubto.

Zac-tsunan.

Zac-yik-che.

Zam-chac.

Zapote murciélago. Sp. A tree of Quintana Roo.

Zapotillo. Sp. A timber tree.

Zicil-tab.

Zicilte. A small tree from whose seeds is extracted an oil with medicinal properties.

Zinan che. A tree which stings like a scorpion if it is merely touched.

Zizal-tsum-ya.

Zizim-kak. Called also *nipcibche* and *zizim-kuch.* A medicinal herb.

Zizim-kuk.

Zoh-bach.

Zoh-bach-ak, zah-bach-ak.

Zol-can. The same as *am-ak.*

Zoot-coc.

Zubin-thul. A tree, its wood used for construction purposes.

Zuluay-xiu.

Zupte. A tree growing in savannas. Wood used for making wheels and other articles.

Zuput. A tree whose wood is used for construction purposes.

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ACKNOWLEDGMENTS

The writer wishes to acknowledge his indebtedness to several persons who have aided in the determination of various families: Edwin B. Bartram, Mosses; Dr. William R. Maxon, Ferns; Agnes Chase, Gramineae; Dr. N. L. Britton, Cyperaceae; Professor Oakes Ames, Orchids; Ellsworth P. Killip, Passifloraceae. Special thanks are due to Ralph L. Roys, who has been generous in giving assistance with the Maya vernacular names.

FUNGI

There must be a large number of fungi native in Yucatan, but only a specialist in the group can collect them intelligently, and up to the present time they have not been studied systematically.

PERISPORIALES

Asterdium moniliforme Ellis & Everh.; Millsp. FMB. 2: 16. 1900.

San Miguel, on leaves of *Tetrapteris mexicana, Millspaugh 1484,* in part.

Asterina yucatanensis Ellis & Everh. in Millsp. FMB. 1: 285. *pl. 9.* 1896.

Type from Yucatan, on living leaves of *"Pterocarpus* sp.," *Gaumer.*

SPHAEROPSIDALES

Macrophoma surinamensis (B. & C.) Millsp. FMB. 1: 285. 1896.

Yucatan, on leaves of *Epidendrum* sp. Determined by J. B. Ellis.

Pestalozzia Coccolobae Ellis & Everh.; Millsp. FMB. 1: 286. *pl. 9.* 1896.

Type from Tsilám, on leaves of *Coccoloba uvifera.*

HYPHOMYCETALES

Aspergillus flavus Lk.

"On various plants that were allowed to remain too long in plant press without changing driers." Determined by Ellis.

Aspergillus fuliginosus Peck?

On leaves of *Epidendrum* sp. Determined by Ellis.

Penicillium glaucum Lk.

On the interior of the shells of fruits of *Jacquinia.* Determined by Ellis.

MELANCONIALES

Gloeosporium affine Sacc.

On leaves of *Epidendrum* sp. Determined by Ellis.

USTILAGINALES

Mykosyrinx Cissi (DC.) G. Beck.

A frequent smut in the inflorescences of the various species of *Cissus*.

Sorosporium Borrichiae Ellis & Everh. in Millsp. FMB. 2: 16. 1900.

Type from Cozumel Island, on flower heads of *Borrichia argentea, Millspaugh 1586*, in part.

Ustilago Zeae (Beckm.) Unger.

Tahchaac (Gaumer). Sp. *Tizón de maíz.* Reported as frequently attacking maize (*Zea Mays*).

AGARICALES

This group includes the common mushrooms or toadstools, and the shelf or bracket fungi. Mushrooms are said to be called in Yucatan "quitasol del diablo." The Maya name "xicinche" also is reported.

Agaricus yucatanensis Ellis & Everh. in Millsp. FMB. 1: 285. *pl. 8.* 1896.

Type from Izamal, *Gaumer 788.*

Lentinus nicaraguensis B. & C.

Reported from Cozumel Island and Pisté.

Lentinus villosus Klotzsch.

Boxlolluum (Gaumer). Mérida, *E. H. Thompson 947.*

Polyporus similis Berk.

Caleta, Cozumel Island, *Millspaugh 1615.*

Polystictus albocervinus Berk.

Caleta, Cozumel Island, *Millspaugh 1559.*

Polystictus sanguineus (L.) Fries.

Cozumel Island, *Millspaugh 1614.*

Poria vincta Berk.?

Pisté, *Millspaugh.*

Trametes venustus Berk.

Cozumel Island, *Millspaugh 1613.*

ALGAE

Microspora amoena (Keutz) Raben.

Xkomha. Common in water tanks at Izamal, *Gaumer 571.* Determined by Miss Josephine E. Tilden.

Nostoc verrucosum Vauch.

Aguada Chulubmay, nine miles east of Izamal, *Gaumer 1097.* Determined by W. G. Farlow.

CHARACEAE. Stonewort Family

Chara gymnopus A. Br.

Common in aguadas east of Izamal, *Gaumer 913.* "An indeterminable sterile subspecies of this form" (*T. F. Allen*).

Chara gymnopus var. **inconstans** A. Br.

Abundant in cenotes near Izamal, *Gaumer 434.* Determined by Allen.

LICHENS

Ramalina calicaris var. **farinacea** Schaer.

Mextsul. On shrubs, Progreso, *Schott 311.*

Ramalina calicaris var. **fraxinea** Fr.

Common at Progreso, *Gaumer 1175.*

Ramalina rigida (Pers.) Tuck.

On trees and shrubs, Progreso, *Schott 311.*

The Motul Dictionary reports the names "tzucmax" and "zocichac" for plants which are probably lichens.

MUSCI. Mosses

Mosses probably are not plentiful in the Yucatan Peninsula, but the number must be vastly larger than has been recorded. The Maya name "cuxun" has been reported for a plant of this group.

Tortula agraria Sw. *Barbula agraria* Brid.

Reported from Cozumel Island, on dry limestone, *Millspaugh 48;* on dry limestone near Izamal, with *Didymodon aeneus, Millspaugh 80,* in part. Determined by Cardot.

Cryphaea filiformis Brid.

Common in brush and forest about Izamal, *Gaumer 320.* Determined by Mrs. E. G. Britton.

Didymodon aeneus Sch.

Near Izamal, on dry limestone, *Millspaugh 80*, in part. Determined by Cardot.

Hypnum sp.

In brush and forest lands about Izamal, *Gaumer 340*. Determined by Mrs. Britton.

Leucobryum albidum (Brid.) Lindb. *L. incurvifolium* C. Muell.

Type of *L. incurvifolium* from Buena Vista Xbac, *Gaumer 1117*.

Octoblepharum albidum (L.) Hedw.

Tsilám, *Gaumer 665*. Determined by Mrs. Britton.

Stereophyllum leucostegum (Brid.) Mitt.

Cozumel Island, on limestone, *Millspaugh 33, 47*. Determined by Cardot.

Stereophyllum perpusillum C. Muell. in Millsp. FMB. 1: 348. 1898.

Type from forest near Izamal, *Gaumer 340*.

Thuidium involvens (Hedw.) Mitt.

On rocks at Cenote of Xcholac, *Gaumer 560*. Determined by Mrs. Britton.

HEPATICAE. Liverworts

Cheilolejeunea sp.

On tree trunk, Mascab Pixoy, *Millspaugh 151*. Determined by Underwood.

Cheilolejeunea sp.

On trunk of ceiba tree, Cozumel Island, *Millspaugh 37*.

Eulejeunea lepida L. & G.

On bark of ceiba tree, Cozumel Island, *Millspaugh 32*. Determined by Underwood.

Frullania ericoides Nees?

On trees, Izamal, *Gaumer 339*. Determined by Underwood.

Mastigolejeunea auriculata Wils.

On tree trunks, Chichen Itzá, *Millspaugh 106*. Determined by Underwood.

SCHIZAEACEAE. Curly-grass Family

Anemia adiantifolia (L.) Sw.

Muchcockax (Gaumer). Apparently frequent.—Rhizome creep-

ing, hairy; sterile fronds ovate-deltoid, 7–30 cm. long, 2–3-pinnate, hairy; fruiting fronds with only the basal pinnae fertile.

Anemia cicutaria Kunze. *A. bipinnata* Moore; *Ornithopteris cicutaria* Underw.; *A. Wrightii* Millsp., not Baker; *O. Wrightii* Millsp. FMB. 3: 14. 1903, excluding synonymy.

Uiitsilxiu (Gaumer). Collected only on Cozumel Island.—Leaves dimorphous, the fruiting ones wholly fertile.

Lygodium polymorphum (Cav.) HBK. *L. venustum* Sw.

Reported by Rovirosa from Atasta, Tabasco, and probably occurring, therefore, within the limits of this flora.—A large slender hairy vine, often forming dense tangles. One of the common climbing ferns of the more arid regions of Mexico and Central America.

CYATHEACEAE. Tree Fern Family

Alsophila microdonta Desv. *A. armata* Mart.

Collected at Atasta, Tabasco, *Rovirosa 48*.—A handsome tree fern with a slender trunk 1–5 m. high; leaves few, 2–2.5 m. long, ovate-oblong, subtripinnate.

Hemitelia Hartii Baker has been reported from Cozumel Island, but there are no specimens available, and the record is very doubtful.

POLYPODIACEAE. Polypody Family

In local publications there has been reported frequently from Yucatan a fern under the name *Ceterach officinarum* or as *Ceterach aureum*. Its identity is altogether obscure, but probably it is one of the species listed here. It is reported to be known as "muchcoc" and "doradilla," and it is stated that the dried plants are sold commonly in the markets. They are used as a remedy for gonorrhea and for affections of the liver and bladder, as well as for various other ailments. It is possible that the plant may be rather a species of *Selaginella*.

Acrostichum daneaefolium Langsd. & Fisch.

Without locality, *Gaumer 24348*.—A large coarse fern with simply pinnate leaves, growing usually in open swamps, in shallow water.

Adiantum petiolatum Desv. *A. Kaulfussii* Kunze.

Reported by Rovirosa from Atasta, Tabasco.—Leaves once pinnate, 15–25 cm. long, the pinnae glaucous beneath.

Adiantum tenerum Sw.

Sp. *Culantrillo*. Apparently frequent.—Leaves decompound, deltoid-ovate, the segments trapeziform or rhombic-oblong, glaucous green.—It is perhaps this species for which the name "teltsiu" is reported, the plant being employed in domestic medicine, especially as an emmenagogue.

Adiantum tetraphyllum Willd.

Reported by Rovirosa from Atasta, Tabasco.—Leaves twice pinnate; pinnules not glaucous, sessile.

Adiantum tricholepis Fée.

Sp. *Culantrillo*. Frequent.—Leaves 3–4-pinnate, ovate, the segments roundish-rhombic.

Asplenium dentatum L.

Cenote de Telchaguillo, *Schott 747*.—Leaves small, pinnate, 6–20 cm. long, the pinnae 8–12 pairs, mostly opposite.

Asplenium pumilum Sw.

Zizalchen (Gaumer). Sp. *Culantrillo*. Collected in shady places at several localities; also on Cozumel Island.—Leaves pinnately parted, the lower segments petiolate and more or less 3-lobed, crenate-dentate.—The plant is sometimes used in domestic medicine.

Cheilanthes horridula Maxon.

Only a single Yucatan specimen has been seen, collected long ago at Mérida, *Schott 3*.

Cheilanthes leucopoda Link has been reported as collected by Gaumer on Cozumel Island, but no specimens are at hand to substantiate the record.

Cheilanthes microphylla Sw. *Pellaea aspera* Millsp. FMB. 1: 287. 1896, not Baker.

Apparently frequent.—Plants low, with wiry glabrous blackish stipes; fronds pinnatisect, rusty-pubescent, the segments very small, pinnatifid, obtuse.

Dryopteris augescens (Link) C. Chr. var. **puberula** (Fée) C. Chr. *D. patens* Millsp. FMB. 1: 287. 1896, not Sw.

Sp. *Culantrillo blanco*. Frequent.—A large coarse plant, the leaves pinnate, the pinnae pinnatisect.

Dryopteris meniscioides (Liebm.) C. Chr. *Polypodium meniscioides* Liebm.

Reported by Rovirosa from Atasta, Tabasco.

Dryopteris reptans (Gmel.) C. Chr. *Goniopteris reptans* Presl; *Nephrodium reptans* Diels.

Schott 779. Reported also from Tsitas, *Seler 3955.*—Leaves stellate-pubescent, 14–22 cm. long, the pinnules ovate, obtuse.

Dryopteris subtetragona (Link) Maxon. *Phegopteris rudis* Millsp. FMB. 1: 349. 1898, not Fée; *Polypodium tetragonum* Sw.; *Goniopteris tetragona* Presl.

Apparently frequent.—Fronds 25–30 cm. long, the pinnae lanceolate, pinnatifid, sparsely pubescent, the segments obtuse, entire.

Hemionitis palmata L.

Buena Vista Xbac, *Gaumer 1072.*—Fronds palmately 3–5-lobed, deeply cordate at the base, the lobes almost entire.

Nephrolepis occidentalis Kunze.

Reported by Rovirosa (as *N. cordifolia* var. *pectinata* Baker) from Atasta, Tabasco.

Paltonium lanceolatum (L.) Presl.

Reported by Rovirosa (as *Taenitis lanceolata* R. Br.) from the vicinity of Atasta, Tabasco.

Polypodium astrolepis Liebm. *Gymnogramme elongata* Hook.

Reported by Rovirosa as growing on trees near Atasta, Tabasco.

Polypodium decumanum Willd.

Reported by Rovirosa from Atasta, Tabasco.

Polypodium Palmeri Maxon. *P. lycopodioides* Millsp. FMB. 1: 348. 1898, not L.

Naabtsuts (Gaumer). Frequent.—Creeping on tree trunks; leaves small, oblong or lanceolate, entire.

Polypodium Phyllitidis L. *Campyloneuron Phyllitidis* Presl.

Occasional as an epiphyte on trees.—Leaves 30–70 cm. long, stiff, oblong-linear to oblong-lanceolate, long-tapering to the base, nearly entire.

Polypodium polypodioides (L.) Watt. *P. incanum* Sw.

Buena Vista Xbac, *Gaumer 1110.*—Growing on trees, the rootstocks long and creeping; fronds 6–10 cm. long, pinnatifid, densely grayish-scaly.

Pteridium caudatum (L.) Maxon. *Pteris aquilina* var. *caudata* Link.

Xualcanil (Gaumer). Occasional.—The plant is very similar to the widely distributed bracken, *Pteridium aquilinum*.

Tectaria trifoliata (L.) Cav. *Aspidium trifoliatum* Sw.

Chacchauayxiu. Frequent in moist places.—A large coarse fern with pinnatisect fronds and very large, rounded fruit dots.

SALVINIACEAE. Salvinia Family

Salvinia auriculata Aubl.

Izamal, *Gaumer 1007*.—A small floating aquatic plant.

SELAGINELLACEAE. Selaginella Family

Selaginella cuspidata Link.

Mutscoc. Occasional in dry places.—This *Selaginella* forms rosettes similar to those of the resurrection plant of the southwestern United States.

Selaginella erythropus Spr.

Without locality, *Gaumer 23171*.

Selaginella longispicata Underw. FMB. 1: 287. *pl. 10*. 1896.

Mutscoc (Gaumer). Sp. *Doradilla*.—Type from Izamal, *Gaumer 825*. Nohcacab and Mérida, *Schott 669*. This species occurs also in Haiti.

CYCADACEAE. Cycad Family

Dioon spinulosum Dyer.

Chamal (Gaumer). Reported from Progreso.—This is a little-known species, and has not been found among recent Yucatan collections; perhaps only cultivated at Progreso. The trunk is said to reach a height of 15 m.

Zamia furfuracea L. f.

San Anselmo, *Gaumer 2430;* Buena Vista Xbac, *Gaumer 1076*.—A forest plant, stemless or with a short trunk; leaves pinnate, the numerous leaflets lance-linear, glabrous, serrulate, attenuate, finely nerved; fruit a large cone.—The roots are poisonous, and are reported to have been used in Central America for criminal poisoning. This species probably is common in the southern part of the Peninsula. The roots of some Zamias were an important article of food among the Caribs and other American natives, the poisonous property being destroyed by heat.

PINACEAE. Pine Family

Pinus caribaea Morelet.

Huhub (Tozzer).—*Cuban pine.* No specimens of pines are available from Yucatan, but the trees (presumably of this species, which is common in near-by regions) are reported as occurring abundantly on the pine and cohune ridges near the border of British Honduras. The Ixil (Guatemala) name for pine tree is "tza," the Pokonchí name "chah."

TYPHACEAE. Cat-tail Family

Typha angustifolia L. *T. domingensis* Pers.

Puh. Sp. *Espadaña.* Progreso, *Millspaugh 1676.*—*Cat-tail.* Probably common in suitable habitats throughout the region.

This plant has been reported from Yucatan under the almost incredible name of "*Pandanus utilis*" (see Millsp. FMB. 1: 9. 1895). Just how this mistake occurred, it is impossible to determine at the present time, but apparently it is based upon an earlier published record.

Cat-tail leaves are sometimes employed for weaving mats. In Guatemala the fluff from the fruiting spikes is used for stuffing pillows.

NAIADACEAE. Naias Family

Naias guadalupensis (Spreng.) Morong.

Reported as common in quiet water. Aguada Xkaxek, *Gaumer 23230.*—A slender branched herb with opposite linear leaves, growing submerged in water.

ALISMACEAE. Water-plantain Family

Echinodorus cordifolius (L.) Griseb.

Progreso, *Millspaugh 1692.*—An herbaceous plant of marshy soil with ovate cordate leaves; flowers white, racemose.

GRAMINEAE. Grass Family

Andropogon Gaumeri (Nash) Hitchc. & Chase, CNH. 17: 202. 1913. *A. semiberbis* Millsp. FMB. 1: 350. 1898; Millsp. & Chase, FMB. 3: 19. 1903, not Kunth. *Schizachyrium Gaumeri* Nash, N. Amer. Fl. 17: 102. 1912.

Known only from the type, collected at Izamal, *Gaumer 1037.*—A tufted annual; leaves 3–4 mm. wide, glabrous; spikelets 1-flowered,

in pairs at each joint of the slender racemes, these 4–6 cm. long; sessile spikelet scabrous, the rachilla joint with a few hairs at the summit only.

Andropogon malacostachyus Presl. *A. hirtiflorus* Millsp. FMB. 1: 350. 1898; Millsp. & Chase, FMB. 3: 19. 1903, not Kunth.

Collected only at Tekax.—A slender annual 1 m. high; leaves 3–4 mm. wide, glabrous; racemes 4–6 cm. long; sessile spikelet and rachilla joint pilose.

Anthephora hermaphrodita (L.) Kuntze. *A. elegans* Schreb.

A common weed.—An annual, rooting at the lower nodes; leaves flat, 4-10 mm. wide, glabrous or hirsute; spikelets 1-flowered, 4.5 mm. long, in clusters of 3 or 4 in long slender spikes.

Aristida adscensionis L. *A. bromoides* HBK.; *A. nigrescens* Presl.

Frequent.—A small much-branched annual; blades scabrous, 2 mm. wide or narrower; spikelets 1-flowered, 3-awned, in narrow panicles 5–10 cm. long.

Aristida jorullensis Kunth.

Reported (Millsp. & Loes. BJE. 36: Beibl. 80: 12. 1905) from Chichen Itzá, *Seler 3999*.—The specimen, determined by Pilger, has not been seen by the present writer.

Aristida ternipes Cav. *A. scabra* Kunth; *Streptachne tenuis* Millsp. FMB. 1: 354. 1898, not HBK. *A. tenuis* Millsp. & Chase, FMB. 3: 48. 1903, not Kunth.

Frequent.—An erect perennial; blades 2–3 mm. wide; spikelets 1-awned, in a large open panicle.

Arundo Donax L.

Tekhalal (Gaumer). Cultivated and perhaps naturalized; native of the Old World.—*Giant reed.* Plants 3–5 m. high, forming dense clumps; leaves flat, 5–8 cm. wide; inflorescence a feathery panicle 50–80 cm. long.

Bambusa vulgaris Schrad. *Guadua latifolia* Millsp. FMB. 1: 352. 1898, not HBK.

Sp. *Bambú.* Planted for ornament; native of the Old World tropics.—*Bamboo.* The plant is cultivated generally in tropical America for ornament, and the stems are used extensively for the construction of houses as well as for many other purposes.

Bouteloua disticha (HBK.) Benth.

Collected only at Nohcacab, *Schott 741*.—An erect cespitose perennial 30 cm. high; spikelets 1–2-flowered, in dense one-sided spikes, these about 25, racemose, 1.5 cm. long.

Bouteloua filiformis (Fourn.) Griffiths. *B. americana* Millsp. FMB. 1: 350. 1898; Millsp. & Chase, FMB. 3: 53. 1903, not Scribn. *B. bromoides* Millsp. FMB. 1: 350. 1898, not Lag.

Sp. *Pelillo*. Frequent.—A cespitose perennial; blades 1.5–2 mm. wide; spikes 1.5–2 cm. long; spikelets about 10 in each spike.

Bouteloua juncea (Desv.) Hitchc. & Chase. *B. Triaena* Scribn.

Frequent.—A cespitose erect hairy perennial; spikes 20–70, 7–12 mm. long, racemose.

Cenchrus echinatus L. *C. brevisetus* Fourn.

Muul (Gaumer). Sp. *Guisaso*. Common.—*Sandbur*. An erect or decumbent annual; inflorescence densely spicate; spikelets enclosed in a spiny involucre or bur 5.5 mm. long.

Cenchrus insularis Scribn. in Millsp. FMB. 2: 26. 1900.

On the islands off the east coast; type from Pájaros Island, *Millspaugh* 1759; also in Colombia and Brazil.—Spikes 5–10 cm. long, not very dense; burs 6–7 mm. long.

Cenchrus pauciflorus Benth. *C. tribuloides* Millsp. FMB. 2: 27. 1900; Millsp. & Chase, FMB. 3: 42. 1903, not L. *C. carolinianus* Millsp. FMB. 2: 430. 1916, not Walt.

Sp. *Rosetilla*. Frequent.—Plants annual, sometimes forming large mats; spikes 3–8 cm. long, rather crowded; burs 3–7 mm. wide.

Cenchrus pilosus HBK. *C. pallidus* Fourn.

Mul (Gaumer); reported also as "mool." Frequent.—Spikes 5–14 cm. long, dense; burs 4–4.5 mm. long.—All the species of this genus, called "sandbur" in English, are much alike in general appearance, and probably all have the same Maya name. The very sharp spines of the burs adhere to clothing, and even penetrate shoes easily.

Cenchrus viridis Spreng. *C. pallidus* Millsp. FMB. 1: 351. 1896, in part, not Fourn.

Frequent.—Spikes 4–10 cm. long, dense; burs 4 mm. long.

Chloris ciliata Swartz.

Frequent.—A decumbent or erect annual; leaves flat, 7–20 cm. long; spikelets 1-flowered, arranged in 2 rows on one side of the rachis, the spikes few, 4–7 cm. long.

Chloris petraea Swartz.

Occasional in the coastal region.—Perennial; leaves 1 cm. wide or less, obtuse, smooth; spikelets 2 mm. long, the spikes usually 4–6, 4–11 cm. long.

Chloris virgata Swartz. *C. elegans* HBK.; *C. barbata* Millsp. FMB. 1: 351. 1898, not Swartz.

Sp. *Barba de indio*. Common.—An annual; leaves narrow, rough; spikelets long-awned; spikes 5–10, 4–6.5 cm. long.

Coix Lacryma-jobi L.

Rare; native of the Old World.—*Job's-tears*. A coarse tall grass with broad leaves, the inflorescence of 1–5 spikes; pistillate spikelets enclosed in hard, ovoid, pearly or grayish, beadlike bodies.—The "seeds" are often used for making necklaces and bracelets. Tozzer gives the Lacandon name of the plant (in Chiapas) as "sukpaen."

Cymbopogon Nardus (L.) Rendle. *Andropogon Nardus* L.

Sp. *Zacate de limón*. Cultivated; native of tropical Asia.—*Citronella grass*. A tall perennial, lemon-scented; leaves glabrous, glaucous, 1.5–2 cm. wide; spikelets 1-flowered, in pairs, one sessile, the other stalked, forming large panicles, the pairs of spikelets subtended by red-brown sheathing spathes 1–2 cm. long.—A tea made from the leaves is given as a remedy for colic. This grass seldom or never flowers in Central America.

Cynodon Dactylon (L.) Pers.

Canzuuc (Gaumer). Sp. *Grama*. Common, especially about towns; probably introduced.—*Bermuda grass*. A perennial grass, creeping and often forming a dense sod; leaves 2.5–5 cm. long, 2–4 mm. wide, scabrous above; spikelets 1-flowered, in 2 rows along one side of slender spikes, these digitate; spikelets 2 mm. long.—A decoction of the plant is employed in domestic medicine as a diuretic.

Dactyloctenium aegyptium (L.) Willd. *Eleusine aegyptiaca* Desf.

A frequent weed.—A decumbent annual, often creeping; leaves 2–6 mm. wide, smooth or rough, sometimes pubescent; spikelets

2-flowered, with 2 rudimentary florets above, 3.5 mm. long, densely crowded in 2–4 digitate spikes 1.5–4 cm. long.

Digitaria filiformis (L.) Muhl. *Syntherisma filiformis* Nash.

Frequent.—Plants slender, the sheaths, at least the lower, hirsute, the blades 1–4 mm. wide; spikelets 1-flowered, in pairs in secund digitate racemes; rachis of the filiform raceme not winged, not long-hairy.

Digitaria horizontalis Willd. *Syntherisma setosa* Nash.

Occasional.—Plants slender, decumbent, rooting at the lower nodes; leaves hirsute, 2–7 mm. wide; racemes filiform, 3–14 cm. long, the rachis not winged, long-hairy.

Digitaria sanguinalis (L.) Scop. *Syntherisma sanguinalis* Dulac; *Panicum marginatum* Millsp.

A common weed.—*Crabgrass.* Plants slender, decumbent and rooting; leaves glabrous or pubescent, the blades 5–10 mm. wide; rachis of the slender raceme winged.

Distichlis spicata (L.) Greene.

Frequent on sea beaches and lake shores.—*Saltgrass.* A low dioecious perennial; culms very leafy, the leaves narrow, spreading; spikelets several-flowered, compressed, in short dense panicles.

Echinochloa Colonum (L.) Link. *Panicum Colonum* L.

Common.—An annual, usually much branched, the culms spreading or erect, 20–40 cm. long; blades 3–10 mm. wide, scabrous on the margins, often with transverse purple bands; spikelets 1-flowered, 3 mm. long, crowded in dense panicled spikes.

Echinochloa Crus-galli (L.) Beauv. var. **Crus-pavonis** (HBK.) Hitchc.

Aguada Kanachen, *Schott* 832.—*Barnyard grass.* A tall coarse grass, the sheaths glabrous; spikelets with long stiff awns.

Eleusine indica (L.) Gaertn.

Sp. *Grama de caballo.* A common weed; native of the Old World. —Plants annual or perennial, erect or decumbent; leaves 2–6 mm. wide, smooth or scabrous; spikes 3–6-flowered, in digitate spikes 2–9 cm. long.

Eragrostis amabilis (L.) Wight. & Arn. *E. plumosa* Link; *E. ciliaris* Millsp. FMB. 1: 288. 1896, not Link. *E. mexicana* Millsp. FMB. 1: 288. 1896, not Link.

Zaczuuc (Gaumer). Common.—A delicate tufted annual 10–20 cm. high; blades 2–10 cm. long, 4 mm. wide or less; panicles broad and open; spikelets 2 mm. long, 4–8-flowered, in lax panicles.

Eragrostis ciliaris (L.) Link.

A common weed.—A slender tufted annual 30 cm. high or less; leaves 2–5 mm. wide; panicles long, narrow, and dense; spikelets 3–4 mm. long, 6–16-flowered.

Eragrostis mexicana (Lag.) Link.

Bayal (Gaumer). Frequent.—A tall slender annual; panicles 6–13 cm. long, broad and open; spikelets 4–4.5 mm. long, 7–9-flowered, pale, on slender pedicels.

Eragrostis secundiflora Presl. *E. elongata* Millsp. FMB. 1: 351. 1898, not Jacq. *E. amoena* Millsp. & Chase, FMB. 3: 62. 1903, not Presl.

On sea and lake shores.—Perennial; panicle narrow, stiff, 3–12 cm. long, 1 cm. wide; spikelets 10–15 mm. long; 16–30-flowered.

Gouinia latifolia (Griseb.) Vasey.

Sp. *Cañote*. Occasional.—A tall slender perennial with broad blades; spikelets 3–4-flowered, 12–15 mm. long, in 2 rows along one side of the branches of a large spreading panicle 25 cm. long; awns 4.5–5.5 mm. long.

Gouinia virgata (Presl) Scribn.

Collected at Izamal and Tekax.—Plants tall and slender, the blades broad and flat; panicles 35–40 cm. long, lax and open, tawny-tomentose in the axils; spikelets 15–18 mm. long, on slender pedicels; awns 8–10 mm. long.

Hackelochloa granularis (L.) Kuntze.

Occasional.—A branched annual; leaves hirsute, 3–15 mm. wide; spikelets 1-flowered, in spikelike racemes, partially imbedded in excavations in the jointed rachis; perfect spikelets deeply pitted.

Heteropogon contortus (L.) Beauv. *Andropogon contortus* L.

Chichen Itzá, *Seler 3998*.—An erect perennial 30–80 cm. high; leaves smooth, 3–7 mm. wide; spikelets 1-flowered, 8 mm. long, with long entangled awns, forming spikelike racemes 4–7 cm. long.

Ichnanthus lanceolatus Scribn. & Smith, U. S. Dept. Agr. Div. Agrost. Bull. 4: 36. *pl. 5*. 1897.

Xkanchim (Gaumer). Frequent; endemic; type from Izamal, *Gaumer 854*.—Plants erect or spreading at base, 40–60 cm. high, more or less pubescent; blades petioled, oblong to oval, 1–3 cm. wide; spikelets 1-flowered, 4 mm. long, lanceolate, glabrous, in panicles 5–12 cm. long.—The plant is said to be abundant in many places, and to be a good forage grass.

Ichnanthus pallens (Swartz) Munro.

Atasta, Tabasco, *Rovirosa 642*.—Plants much branched, spreading, creeping at base, pubescent; leaves sessile, 5–10 cm. long, 1–2 cm. wide; spikelets 3–3.5 mm. long, glabrous or with a few stiff hairs, the panicles 5–10 cm. long.

Lasiacis divaricata (L.) Hitchc. *Panicum divaricatum* L.

Zit (Gaumer). Frequent in thickets.—A slender, somewhat woody vine, glabrous or nearly so; leaves narrowly lanceolate, 5–12 cm. long, 5–15 mm. wide; spikelets 1-flowered, 4 mm. long, the panicles open, 5–20 cm. long.

Lasiacis Rugelii (Griseb.) Hitchc.

Collected only at Lake Chichankanab.—A much-branched vine; culms appressed-hispidulous; blades oblong-lanceolate, acuminate, 2–5 cm. long, 4–12 mm. wide, hispidulous or puberulent; spikelets 5 mm. long, the panicles few-flowered, usually not more than 5 cm. long.

Lasiacis ruscifolia (HBK.) Hitchc. *Panicum compactum* Sw.; *P. divaricatum* var. Millsp. FMB. 1: 288. 1896; *P. divaricatum* var. *latifolium* Millsp. FMB. 1: 353. 1898, not Fourn.

Mehenzit (Gaumer), *Siit* (Schott). Frequent. A coarse woody vine, pubescent; blades 10–15 cm. long, 3–6 cm. wide, ovate-oblong or lance-oblong, acuminate; spikelets 3–4 mm. long.

Leersia hexandra Sw. *Homalocenchrus hexandrus* Kuntze.

Atasta, Tabasco, *Rovirosa 648*.—A plant of wet soil, the culms slender, rooting at the lower nodes; blades flat, 3–6 mm. wide, rough; spikelets 1-flowered, 4–4.5 mm. long, in panicles 4–8 cm. long.

Leptochloa domingensis (Jacq.) Trin.

Kancabtsonot, *Gaumer* 23545.—An erect perennial; leaves narrowly linear; spikelets several-flowered, in 2 rows along one side of the slender rachis, the spikes racemose.

Leptochloa fascicularis (Lam.) Gray.

Chichankanab, *Gaumer 1568;* without locality, *Gaumer 24361*.—An annual, the sheaths smooth or scabrous; blades narrowly linear;

spikes numerous, in large panicles; spikelets 8–10 mm. long, 4–10-flowered.

Leptochloa filiformis (Lam.) Beauv. Ess. Agrost. 71. 1812. *L. mucronata* Kunth.

Common.—An annual, the sheaths pilose; spikes 25–40, filiform, 6–15 cm. long; spikelets 3 mm. long, 4–5-flowered.

Monanthochloe littoralis Engelm.

Tsilám, on beaches.—A low perennial with crowded short rigid leaves; plants dioecious, the spikelets 2–3-flowered, usually sessile in pairs in the axils of the upper leaves.

Olyra latifolia L.

Atasta, Tabasco, *Rovirosa 43*.—A coarse perennial, often 2 m. long or more; leaves lanceolate to ovate-lanceolate, 2–5 cm. wide; spikelets 1-flowered, 1.5–2.5 cm. long, in open panicles 10–15 cm. long.

Olyra yucatana Chase, Proc. Biol. Soc. Washington 21: 178. 1908. *O. semiovata* Millsp. & Chase, FMB. 3: 46. 1903, not Trin.

Occasional; endemic; type from Pocoboch, *Gaumer 2372*.—A large coarse perennial; leaves large, ovate-oblong, acuminate; pistillate spikelets 8 mm. long, scabrous, the awns 4–12 mm. long; panicles contracted, 8–14 cm. long, 2 cm. wide.

Oplismenus Burmanni (Retz.) Beauv.

A frequent weed.—Plants annual, ascending or prostrate, 10–40 cm. long; blades lance-oblong, acuminate, 2–5 cm. long, 1–1.5 cm. wide, pubescent; spikelets 1-flowered, in dense panicled spikes, with long, antrorsely scabrous awns.—One of the most abundant weedy grasses of southern Mexico and Central America.

Oplismenus hirtellus (L.) Beauv.

Without locality, *Gaumer 24425*.—Plants perennial, creeping; blades lance-oblong, acuminate, 5–10 cm. long, 1–2 cm. wide, glabrous or pubescent; awns smooth.

Oplismenus setarius (Lam.) Roem. & Schult. *O. hirtellus* Millsp. FMB. 2: 26. 1900; Millsp. & Chase, FMB. 3: 36. 1903, not Roem. & Schult.

Collected only on Cozumel Island.—Plants perennial, ascending or nearly prostrate, 10–20 cm. long; blades 1–3 cm. long, 4–10 mm. wide, pilose or glabrate; awns smooth.

Oryza sativa L.

Sp. *Arroz.* Grown for food; native of the Old World tropics.—*Rice.* Upland rice is cultivated in many localities, and is one of the important foods of the region.

Panicum barbinode Trin.

Sp. *Zacate Pará.* Grown for forage and also naturalized; native of South America.—*Para grass.* A coarse pubescent grass with long sterile culms, rooting at the nodes; leaves 6–16 mm. wide; spikelets 1-flowered, glabrous, 3 mm. long, in open panicles 15–20 cm. long.—This is one of the best pasture grasses of tropical America, and it is planted everywhere in the wet lowlands for forage.

Panicum Chapmani Vasey.

Without locality, *Gaumer 24360.*—Plants cespitose, glabrous, the blades 2–5 mm. wide; spikelets 2 mm. long, in panicles 30 cm. long or shorter.

Panicum fasciculatum Swartz. *P. fuscum* Swartz.

Common.—Plants erect-spreading, copiously hispid; leaves flat, 6–20 mm. wide; spikelets 2–2.5 mm. long, glabrous, in panicles 5–15 cm. long.

Panicum geminatum Forsk. *Paspalum paspaloides* Millsp. FMB. 1: 354. 1898. *Panicum paspaloides* Millsp. & Chase, FMB. 3: 34. 1903.

Frequent.—Plants glabrous, cespitose; leaves 3–6 mm. wide, flat; spikelets 2.2–2.4 mm. long, the panicles narrow, spikelike, 12–30 cm. long.

Panicum Ghiesbreghtii Fourn. *P. hirticaulum* Millsp. & Chase, FMB. 3: 32. 1903, not Presl.

Occasional.—Plants in small tufts, erect, 60–80 cm. high, hirsute; leaves flat, 12 mm. wide or less; spikelets 3 mm. long, glabrous, the panicles 20–30 cm. long, broad and open.

Panicum hirticaulum Presl.

Chichankanab, *Gaumer 1501, 2466.*—Plants erect, branched from the base, the blades broad and flat, sparsely hairy; panicles 5–15 cm. long; spikelets 3.7 mm. long, glabrous, on flexuous pedicels.

Panicum maximum Jacq.

Sp. *Zacate Guinea.* Cultivated commonly for forage, also naturalized; native of South America.—*Guinea grass.* Plants perennial, in dense clumps 1–2.5 m. high, more or less hirsute; blades 1–3.5 cm.

wide; spikelets 3 mm. long, glabrous, the panicles 20–50 cm. long.—Guinea grass is planted very widely in Mexico and Central America for pasture, and seems to be the grass best adapted to the purpose in most regions. It forms a rank growth, and it is often almost impossible to force one's way through the pastures, so dense and tall are the leaves and culms. Such places are all the less attractive because they are usually infested with millions of garrapatas, or ticks.

Panicum molle Swartz. *P. carthaginense* Millsp. FMB. 1: 353. 1898; Millsp. & Chase, FMB. 3: 35. 1903, not Swartz.

Occasional.—Plants ascending or spreading from a decumbent base, 30–70 cm. high, pubescent; blades 4–15 cm. long, 7–15 mm. wide; spikelets 3.5 mm. long, pubescent, the panicles 6–15 cm. long.

Panicum trichoides Swartz. *P. brevifolium* Millsp. FMB. 1: 288. 1896; Millsp. & Chase, FMB. 3: 32. 1903, not L.

Cuhuech (Gaumer). Common.—Plants spreading, 20–40 cm. high, pubescent; blades oblong-lanceolate, 2–6 cm. long, 1–2 cm. wide; spikelets 1.2 mm. long, pubescent, the panicles 5–20 cm. long, broad and open.

Paspalum Langei (Fourn.) Nash. *P. Schaffneri* Millsp. FMB. 2: 24. 1900, not Scribn. *P. oricola* Millsp. & Chase, FMB. 3: 28. 1903.

Cozumel Island.—Perennial, 25–70 cm. high; blades 7–20 cm. long, 12–15 mm. wide; spikelets 1-flowered, 1.6–2.4 mm. long, in 2 rows along one side of a flattened rachis, the spikes panicled.—The type of *P. oricola* is *Millspaugh 1480* from Cozumel Island.

Paspalum malacophyllum Trin. *P. elongatum* Millsp. FMB. 1: 353. 1898; Millsp. & Chase, FMB. 3: 27. 1903, not Griseb.

Collected only at Mérida.—Panicle of 12–14 racemes, these 2–3.5 cm. long; spikelets 2.3 mm. long, glabrous.

Paspalum yucatanum Chase, CNH. 28: 121. *f. 71*. 1929. *P. paniculatum* Millsp. FMB. 1: 288. 1896, not L. *P. lentiginosum* Millsp. FMB. 1: 353. 1898; Millsp. & Chase, FMB. 3: 28. 1903, not Presl.

Endemic; type from Mérida, *Schott 597*.—An ascending perennial; blades flat, 8–15 cm. long, 8–12 mm. wide, finely appressed-pubescent; spikelets semihemispheric, 1.4 mm. long, forming slender one-sided spicate racemes.

Phragmites communis Trin. *P. vulgaris* Trin.

Zachalal (Gaumer), *Halal* (Aznar). Sp. *Cañoto*. Frequent in low swampy places.—*Reed*. Plants 1.5–4 m. tall, forming dense clumps;

leaves 1–5 cm. wide, smooth, glabrous; inflorescence a plumelike panicle 15–30 cm. long or larger.—The plant is probably the "halal" of the Motul Dictionary, used by the Indians for arrow shafts. This grass extends far northward through most of the United States, and occurs also in Europe.

Saccharum officinarum L.

Sp. *Caña de azúcar.* Cultivated commonly; probably native of southern Asia.—*Sugar-cane.* The plant is extensively grown as a source of sugar, especially in Campeche. Aznar reports from that state the following varieties: "caña blanca," "caña morada"; "caña criolla" or "nehuech," a variety now rarely seen. Its Maya name means "armadillo tail," and the variety is so called because the joints are short and the nodes so close together that the canes resemble an armadillo's tail. The Quiché name of sugar-cane is "ahitz"; the Pokonchí name "ahih"; the Ixil name "utzal."

Setaria geniculata (Lam.) Beauv. *S. flava* Kunth; *Chaetochloa geniculata* Millsp. & Chase.

Sp. *Zacate cerdoso.* A common weed.—An erect or spreading perennial; blades 8 mm. wide or narrower, glabrous, scabrous, or villous; spikelets 1-flowered, 2–2.5 mm. long, in dense bristly spikelike panicles.—This is one of the most common weedy grasses of Mexico and Central America.

Setaria Grisebachii Fourn. *Chaetochloa polystachya* Millsp. & Chase, FMB. 3: 38. 1903, not Scribn. & Merr. *S. yucatana* Herrm. Beitr. Biol. Pflanzen. 10: 51. 1910.

Izamal, *Gaumer 2478* (type collection of *Setaria yucatana*).—An erect or spreading annual; blades usually less than 1 cm. wide, puberulent and scabrous; spikelets 2 mm. long, the panicles narrow and interrupted.

Setaria vulpiseta (Lam.) Roem. & Schult.

Without locality, *Gaumer 24292.*—A perennial, sometimes 2 m. tall; blades 3 cm. wide or less; spikelets 2–2.5 mm. long, the panicles as much as 30 cm. long and 4–5 cm. wide.

Setariopsis auriculata (Fourn.) Scribn.; Millsp. FMB. 1: 289. 1896. *Setaria auriculata* Fourn. Mex. Pl. 2: 43. 1886.

Frequent; type collected in Campeche by Linden; widely distributed in Mexico.—An erect annual with narrow flat pubescent blades; spikelets 1-flowered, 3 mm. long, ovoid, acute, subspicate and panicled, the panicles 5–15 cm. long, 1–1.5 cm. wide.

Sorghum Drummondii Nees.

Sometimes cultivated and escaping; native of the Old World.—*Chicken corn.* A tall coarse annual with broad leaves and a very dense panicle; awns 8–10 mm. long.

Sorghum halepense (L.) Pers. *Andropogon halepensis* Brot.

Akilzuuc (Gaumer). Sp. *Zacate Paraná.* Cultivated for pasture, also escaped; native of the Old World.—*Johnson grass.* A tall perennial with long rootstocks; leaves 1–3 cm. wide, flat; spikelets 1-flowered, in decompound panicles up to 60 cm. long.

Sorghum vulgare Pers.

Sp. *Millo.* Sometimes cultivated for fodder and for the seeds; native of the Old World.—*Sorghum.* A tall coarse annual with leaves 2–5 cm. wide, the panicles very dense; awns 5 mm. long.

Spartina Spartinae (Trin.) Merr.

Without locality, *Gaumer 24356;* a plant of brackish swamps.—A stout stiff perennial; spikelets 1-flowered, 7 mm. long, crowded in rows along a one-sided spike, the spikes forming a long slender dense spike.

Sporobolus argutus (Nees) Kunth. *S. domingensis* Millsp. FMB. 2: 27. 1900; Millsp. & Chase, FMB. 3: 50. 1903, not Kunth.

Occasional in saline soil.—An erect perennial 30 cm. high or less; leaves 2.5–5 cm. long, 2–4 mm. wide; spikelets 1-flowered, 1.5 mm. long, in narrow or broad panicles 4–7 cm. long.

Sporobolus atrovirens (HBK.) Kunth.

Izamal, *Gaumer 313* in part.—Panicles pyramidal; leaves short and flat, mostly basal; spikelets 1 mm. long.

Sporobolus minutiflorus (Trin.) Link.

Collected at Izamal and Chichankanab.—Panicles short-exserted, 12–30 cm. long, 2.5–7 cm. wide; spikelets 1.3 mm. long, glabrous, on short slender pedicels.

Sporobolus virginicus (L.) Kunth.

Common on seashores.—An erect, fastigiately branched perennial 15–50 cm. high, with creeping rootstocks; leaves 3–20 cm. long, 4 mm. wide or less, distichous; panicles 3–7 cm. long, dense and spikelike; spikelets 2–2.5 mm. long.

Stenotaphrum secundatum (Walt.) Kuntze. *S. americanum* Schrank.

Occasional.—Plants perennial, creeping or ascending, glabrous; leaves 4–10 mm. wide, blunt; spikelets 6 mm. long, mostly 2-flowered, in narrow dense spikes 4–13 cm. long.

Trichachne insularis (L.) Nees. *Panicum lanatum* Rottb.; *P. insulare* Meyer; *Syntherisma insulare* Millsp. & Chase; *Valota insularis* Chase.

Common.—An erect perennial, growing in clumps; leaves 1–2 cm. wide, glabrous or with pubescent sheaths; spikelets 1-flowered, usually in pairs, forming numerous silky racemes, long-hairy.—The feathery inflorescences are often used in Central America for decorations.

Tridens eragrostoides (Vasey & Scribn.) Nash. *Triodia eragrostoides* Vasey & Scribn.

Tsilám, *Gaumer 1239.*—A slender tall perennial with narrow leaves; panicles loose and open, 15–25 cm. long; spikelets 5 mm. long, 7–10-flowered.

Zea Mays L.

Ixim (sometimes written "ixin" and "xiim"). Sp. *Maíz.—Maize, Indian corn.* Maize is undoubtedly the most important plant of the whole Maya region, for it is today, as it has been for at least 2,000 years, the chief food of the Mayas. Upon the maize plant is based the whole Maya civilization. Exhaustion of the soil consequent upon the growing of the plant is believed to have caused the successive migrations of the Mayas.

The usual system of agriculture in this region, as well as in most parts of Central America, is to clear a piece of land toward the end of the dry season, felling the trees and cutting the brush and coarse herbs. When dry, this litter is burned, the ashes serving as fertilizer. When the rains begin, corn (or other crops) is planted in holes made with a sharp stick. During the growing season the plants are not cultivated, but the larger weeds are usually cut, to prevent their smothering the corn. Sometimes the same plot of ground is planted a second year, but more often a new field is cleared. It is obvious that this is an exceedingly wasteful system of crop growing.

Maize is believed to be a native of central Mexico, but there is still much doubt as to its origin. It is not known in the wild state.

The maize grown in Yucatan is of the flint variety, with hard plump kernels. The ears are usually small, and vary greatly in color. Tozzer mentions the following local varieties: "sakxim" or

"xnuknal," a large white corn; "chakchoch" or "chakxnuknal," a large red corn; "kanxim," a yellow kind; and "chikintsonot," a blue variety. The Motul Dictionary defines "peeu" as "a kind of small red maize, which makes in 40 days, and is very early"; "xacin" as a kind with white and black kernels intermixed.

There is a large Maya vocabulary relating to maize. A cornfield or "milpa" is called "col" (in Ixil "avual" or "com"); "yaxcal" is a field planted without having been burned. "Puch" is defined by the Motul Dictionary as "maize when it is hardening in the field, but is not quite dry." Cornstalks are called "zakab"; the green plant "nal." The name "ixim" refers to the dry kernels removed from the cob. The Motul Dictionary gives the same definition of "co." "Pach'cab" indicates ears which are blown down by the wind. "Zacnal" is defined as "el mismo maíz cuando está en las cañas." "H'ec" is an ear of corn while it is attached to the stalk. Corn silk is called "tzucnal"; corn husks are "h'oloch" or "coloch" ("baa" in Mame; "achben," Jacalteca; "auc," Chuje). Green tender ears suitable for roasting ("elote" in Nahuatl) are called "aknal," "axnal," or "heek" (in Ixil, "ma'tzin hal"; "xeba," Aguateca; "ih" or "iih," Mame; "ahan," Tzental; "aham," Chuje; "ho'ch," Quiché). A corncob is "bacal." This word is used commonly by the Spanish-speaking people of Tabasco in place of the usual Nahuatl "olote" current in Mexico. In Quiché the corncob is "hal"; Pokonchí, "bahlak"; Tzental, "nal." "Cootoloc" is corn with small kernels. "Zucuchacal" is an ear which does not develop kernels. "Choinak" are the ears kept hanging in the houses for seed.

The chief food of the Mayas consists of tortillas, thin cakes of ground maize which are baked or toasted upon hot stoves or a griddle. Tortillas are prepared today exactly as they were a thousand years ago, except that now the soaked corn is sometimes ground in a small mill. The shelled corn is soaked with lime or lye until the outer coating can be removed. It is then ground upon a stone metate or "piedra" with a heavy stone somewhat like a rolling-pin, until it becomes a fine sticky mass, or "masa." The quality of the tortillas depends upon how thoroughly the corn has been ground. The native women spend a large part of their lives at this hard daily task. Tortillas are usually eaten hot and crisp, for when cold they are not very good, and a sadly heavy food.

The corn ready for grinding is called "kuum" (in Nahuatl and Mexican, "nistamal"). The ground corn, or "masa," is called "zacan." The tortilla is called "pacach" or "pecuah"; in Ixil, "le";

Pokonchí, "mukun," "vua," "vuec," or "vuic." "Chepa," according to the Motul Dictionary, is a kind of bread made from new tender corn. "Canlahuntaz" is defined as large loaves of maize bread made of numerous tortillas filled with beans or frijoles, and eaten at the feast accompanying the "misa milpera."

Men traveling, or working in a field, where tortillas can not be toasted, use "totoposte" or "pozol," which consists of the "masa" prepared for tortillas, shaped into small cakes, which are eaten or mixed in water. These are called "maats" or "zacpet" (in Pokonchí, "chac'o'c"; Ixil, "vuh" or "vuah"; Mame, "chovue"; Chuje, "vuail").

Visitors to Mexico and Central America soon learn that there is a prejudice among the native people against drinking cold water. This must be of Indian origin, and Landa states that the Mayas did not drink water alone. Coffee is now taken in its stead, and in Yucatan various beverages made from corn are drunk habitually. "Pinol" (Nahuatl) or "kah" (Maya) consists of ground roasted maize mixed in water with sugar or sirup; and often with chile, cacao, or spices. It is taken either hot or cold. In the Ixil dialect this is called "c'a." "Chocosaka" or "chocosacan" consists of "masa" mixed with hot water and a little salt. "Atol" or "atole" (Nahuatl) is much like "chocosacan," but it is boiled until it becomes a thick glutinous liquid. In Maya this is called "za," "akza," or "izul," according to the manner of its preparation. In Mame atole is called "bo'ch"; Jacalteca, "culul"; Ixil, "tzatzal" or "uc'a"; Pokonchí, "picab," "picob." "Zaca" or "sacha" is a cold drink of raw corn meal and water, sometimes flavored with cacao. It was a customary offering to the gods. "Keyem" is defined as a similar beverage. "Ul" is defined by the Motul Dictionary as sweet atol made from new corn, and "akalix" or "aklix" as another beverage made from tender corn. "Copen" is described as a hot drink made from corn and sweet potatoes.

An infusion of corn silk is administered as a diuretic. Corn had an important place in the religious beliefs and ceremonies of the Mayas. Méndez describes a curious custom, namely, that gourds of "saca" were hung about beehives, in order that the bees might not abandon the hives, and might bring home ample stores of honey, and also that their owners might be free from sickness.

The Maya word "zuuc" is equivalent to "zacate" (Nahuatl), and signifies grass in general. The name "ac" is said to refer to a tall grass with wide blades, growing in savannas, which is used for

thatching houses. It has not been identified. "Koxol-ac" ("mosquito-grass") is a seashore grass, according to Pérez. Brasseur de Bourbourg reports "ochux" as a kind of reed or cane, and "colomche" as a kind of bamboo. The name "xcuzuuc" is applied to a grass which furnishes forage for horses.

CYPERACEAE. Sedge Family

Cyperus brunneus Sw. *C. Ottonis* Millsp. FMB. 1: 11. 1895; 2: 29. 1900, not Boeckl. *C. brizaeus* Millsp. FMB. 2: 121. 1900, not Vahl.

Frequent.—Inflorescence a dense umbel consisting of 2–6 spikes; spikelets dark red, about 20, usually 6 mm. long and 2 mm. wide.

Cyperus canus Presl.

Frequent, growing in water or wet soil.—Plants coarse, sometimes 2.5 m. high; inflorescence an open many-rayed umbel, the spikes digitate at the ends of the rays; spikelets dioecious, compressed, 10–15 mm. long, 2–3 mm. wide, 20–30-flowered, oblong, grayish chestnut.—The plants are sometimes eaten by stock. In some parts of Central America the stems of this species are utilized extensively for weaving mats, especially those used as mattresses.

Cyperus compressus L.

Chichankanab, *Gaumer 1291*.—Inflorescence a 2–5-rayed umbel, the spikes flabellate, green, somewhat mottled with chestnut; spikelets compressed, oblong, 8–20 mm. long, 2 mm. wide, 6–30-flowered.

Cyperus elegans L. *C. viscosus* Sw.

Common.—Inflorescence a 6–10-rayed umbel, the spikes pale green and brown, subglobose, composed of 8–20 spikelets spreading from the short rachis; spikelets compressed, oblong, 8–10 mm. long, 3 mm. wide, about 10-flowered.

Cyperus esculentus L.

Occasional.—Inflorescence a 4–10-rayed umbel, the spikes golden brown, oblong, of 5–25 spreading spikelets; spikelets compressed, oblong, 10–15 mm. long, 2–2.5 mm. wide, 8–14-flowered.

Cyperus ferax L. Rich. *C. densiflorus* Millsp. FMB. 2: 28. 1900, not Mey.

Common.—Inflorescence a large broad compound umbel with 3–6 primary rays, the spikes composed of numerous spreading spikelets; spikelets ferruginous, subterete, very slender, linear, often zig-

zag, 15–30 mm. long and about 1 mm. thick, 5–12-flowered.—One of the most common weedy plants of Central America. Reported by Millspaugh and Chase (FMB. 3: 74. 1903) as *C. Michauxianus* Schult.

Cyperus globulosus Aubl. *C. echinatus* Millsp. & Chase, FMB. 3: 71. 1903, not Wood.

Sisal, *Schott* in 1865.—Inflorescence a 1–8-rayed umbel, the spikes russet-colored, subglobose, the 10–25 spikelets congested; spikelets little compressed, oblong, about 6 mm. long and 2 mm. wide, 3–4-fruited.

Cyperus lentiginosus Millsp. & Chase, FMB. 3: 74. 1903.

Frequent; type from Chichankanab, *Gaumer 1290;* reported from Costa Rica.—Plants tall, the leaves 5–10 mm. wide; inflorescence an umbel with 10–16 rays, the spikes russet-brown or green, oblong, composed of many pectinate spikelets; spikelets scarcely compressed, slender, 10–13 mm. long, 1.3–2 mm. wide, 4–6-fruited.

Cyperus ligularis L.

Occasional.—Inflorescence a compound umbel with 8–12 rays, the spikes rufous, sessile or nearly so, the terminal one very dense and cylindrical; spikelets reddish brown, ellipsoid, 3–5 mm. long and 1.5 mm. wide, 2–4-fruited.—One of the common weedy species of tropical America.

Cyperus ochraceus Vahl.

Mazcabzuuc (Gaumer). Occasional.—Inflorescence a decompound umbel with 6–10 rays, the spikes pale yellowish, subglobose, 1 cm. wide; spikelets strongly compressed, ovate-oblong, 5–10 mm. long, 2 mm. wide, 18–20-flowered.

Cyperus rotundus L.

Occasional.—A perennial with long tuber-bearing rootstocks; inflorescence a 3–7-rayed umbel, the spikes wine-colored, the 2–7 spikelets spreading, compressed, oblong, 5–20 mm. long, 1.5–2 mm. wide, 6–24-flowered.

Cyperus uncinatus Poir. *C. aristatus* Millsp. FMB. 1: 10. 1895, not Rottb. *C. squarrosus* Millsp. FMB. 1: 354. 1898, not L.

Chabxan, Chabxaan, Cabaxan (Schott). Common.—Inflorescence a 2–5-rayed umbel, the spikes russet or chestnut, densely flabellate, composed of 6–25 spikelets divergent from the very short rachis; spikelets compressed, oblong, 6–12 mm. long, 4–5 mm. wide.

Dichromena colorata (L.) Hitchc.

Sisal, *Schott 176.*—Bracts leaflike, white near the base; inflorescence consisting of a white head composed of 8–16 ovoid spikelets 5–8 mm. long.—The plant is a showy one because of the conspicuous white bracts subtending the inflorescence.

Dichromena radicans Schlecht. & Cham.

Cozumel Island, *Millspaugh 1562.*—Bracts sometimes white within near the base; heads composed of 1–3 pale brownish spikelets 9 mm. long.

Eleocharis caribaea (Rottb.) Blake. *Eleocharis capitata* Millsp. FMB. 1: 290. 1896, not R. Br.

Common.—Stems terete, the single spike light brown, ovoid, obtuse, 3.5 mm. long; achene 1 mm. long, black, shining, the tubercle white.

Eleocharis cellulosa Torr.

Occasional.—Spike pale brown, 2–4.5 cm. long, obtuse; achene 2.8 mm. long, brown, the tubercle stramineous, tipped with black.

Fimbristylis diphylla (Retz.) Vahl. *F. laxa* Vahl; *Iria polymorpha* Kuntze.

Pocoboch, *Gaumer 2376;* Holbox Island, *Gaumer* in 1886.—Inflorescence a corymbose umbel of 3–6 rays; spikelets reddish brown, ovoid, obtuse, 5–7 mm. long; achene pale stramineous, 1.2 mm. long, longitudinally ridged.

Fimbristylis ferruginea (L.) Vahl. *F. spadicea* Millsp. FMB. 2: 29. 1900, not Vahl.

Cozumel Island, *Millspaugh 1594.*—Inflorescence umbellate, several-rayed, the rays 2–3 cm. long; spikelets ferruginous, ovoid, obtuse, 8–10 mm. long; achene pale brown, 1.4 mm. long, faintly marked by longitudinal rows of hexagonal reticulations.

Fimbristylis spadicea (L.) Vahl.

Sp. *Esparto* (Gaumer). Common.—Inflorescence a compound umbel, the rays 1–6 cm. long; spikelets chestnut-colored, ellipsoid, acutish, 10 mm. long, the scales indurate; achene blackish, 1 mm. long.

Fuirena simplex Vahl.

Common.—A coarse plant of wet soil; spikelets many-flowered, in terminal or axillary clusters, subtended by a hairy leaflike bract,

1–2 cm. long; scales obovate, obtuse, pubescent, bearing a scabrous awn; achene stipitate and beaked.

Mariscus jamaicensis (Crantz) Britton. *Cladium jamaicense* Crantz; *C. germanicum* Millsp. FMB. 1: 290. 1896, not Schrad. *C. Mariscus* Millsp. & Chase, FMB. 3: 83. 1903, not R. Br.

Holche. Reported also as "holsacbe." Frequent in salt water swamps.—*Sawgrass.* A tall coarse sedge, sometimes 3.5 m. high, with thick, very rough-edged leaves; inflorescence a large panicle composed of dense many-flowered corymbs; spikelets fascicled, chestnut, 2-flowered; achene ovoid, acute, 3 mm. long.—The leaves are very tough, and in Florida they are sometimes employed for weaving baskets and other articles. The rough-edged leaves may cut one's hands and arms if the plants are handled carelessly.

Rynchospora micrantha Vahl.

Occasional.—A low annual with narrow leaves; inflorescence a slender panicle of several lax corymbs; spikelets in clusters of 2–3, 1-fruited, 1.5–2 mm. long; achene 1 mm. long, light brown, transversely rugose, with a depressed tubercle.

Scirpus validus Vahl. *S. lacustris* Millsp. FMB. 1: 290. 1896, not L.

Halal. Frequent in wet or swampy places.—*Bulrush.* A coarse sedge, sometimes 2.5 m. high, with terete green spongy stems; inflorescence a compound, lax, usually drooping umbel; spikelets clustered, ovoid, obtuse, 6–9 mm. long; achene grayish black, 1.5–2 mm. long.—The stems are used for making mats, which are employed as rugs and mattresses. It is probably this plant for which the Motul Dictionary gives the name "cheel poop," defining the term as "the leaves and branches of the rush from which they make mattresses and mats." There is listed also the word "zay," "el corazón de junco de que se hacen petates o esteras."

Scleria lithosperma (L.) Sw.

Collected at San Felipe and Pocoboch.—Plants very slender, low; inflorescence a few-flowered panicle; spikelets clustered, of 2 sexes; achene shining white, marble-like, 2.5 mm. long, with a triangular base.

PALMACEAE. Palm Family

The palms of Mexico are still imperfectly known, and it is probable that others besides those listed may occur in the Peninsula. It is to be presumed, also, that some exotic palms are in cultivation.

Acanthorrhiza Mocinni (HBK.) Benth. & Hook.

Sp. *Palma de escoba.* Campeche, and perhaps elsewhere in the Peninsula.—This species is widely distributed in southern Mexico, and occurs in Guatemala. The vernacular name indicates that the fan-shaped leaves are used for making brooms. The trunk, of medium height, is covered with long spines, and the fruit is about 12 mm. in diameter.

Acrocomia mexicana Karw.

Tuk. Sp. *Coyol, Cocoyol.* Mérida, *Schott 805.* Apparently common.—*Mexican wine palm.* A tall plant with pinnate leaves, the trunk armed with long black spines; fruit about 4 cm. in diameter, borne in dense heavy panicles.—Cuevas reports that there is a variety called "istuk," and Pérez states that the "nut" is called "cheech." The name "coyol" is Nahuatl. The flesh of the fruit is described as sweet and edible. Charcoal made from the roots and taken in water is a local remedy for diabetes. Rosaries are made from the seeds. In Mexico and Central America a mild fermented wine is made from the sap of the trunk of this and other species.

Attalea cohune Mart.

Tutz (Petén, according to Stoll). Sp. *Corozo. Manaca* (B. H.). *Cohune palm* (B. H.). Hacienda Oxcom, *Schott 726.*—This is the finest and largest of Mexican and Central American palms, sometimes attaining a height of 60 m. The enormous but graceful, feathery, pinnate leaves are sometimes as much as 15 m. long. The corozo is reported as abundant in the southern part of the Peninsula, where it grows on the low hills known as cohune ridges, associated with pines. It grows also on low ground, often forming dense stands. The fruits, resembling a small coconut, and about 7 cm. in diameter, are borne in very large, dense, and heavy, pendent panicles. They are rich in oil, but their hardness makes its extraction difficult, else the tree would be an important source of revenue. Gann reports that the Indians break the nuts and boil them in water; the oil rises to the surface and is skimmed off. They burn it in lamps and use it for cooking, and the oil has been used locally as a substitute for linseed oil. It is said that palm wine is obtained from the trunks of the trees. Rejón gives the Maya name of this palm as "mop."

Chamaedorea graminifolia Wendl. *C. gracilis* Millsp. FMB. 1: 355. 1898, not Willd.

Xiat, Chiat. Collected at Nohpat, Xcholao, Buena Vista Xbac, Izamal, Libre Unión.—A handsome and graceful, slender, dwarf

palm 4.5 m. high or less, the green unarmed reedlike stems 2.5 cm. thick; leaves pinnate, with linear segments; spadices once branched; fruit a small black berry.—It grows in clumps, and is sometimes planted for ornament. The Maya name signifies "near the edge of the water," in allusion to the habitat. *Chamaedorea* is the largest and the only large genus of Central American palms. The unopened inflorescences, which resemble small ears of corn with the husk, called "pacayas," are much used as a vegetable in many parts of Mexico and Central America. They are delicious when properly cooked. The Pokonchí name of the Chamaedoreas is reported as "k'ip."

Coccothrinax argentea (Lodd.) Sarg. *Thrinax argentea* Lodd.

Nakaz. Progreso, *Gaumer 23350.*—A palm of the coastal region, the trunk usually not over 6 m. high, sometimes very short; leaves fan-shaped, silvery-white beneath; fruit black, 8–12 mm. in diameter. —This palm does not have pads of fiber like those surrounding the trunks of *Thrinax Wendlandiana,* which it somewhat resembles. It has a network of fiber but not the dense "fuzz." The silver palm has a wide distribution in the West Indies and occurs in southern Florida.

Cocos nucifera L.

Coco, Cocotero. Common, especially on seashores.—The coconut is one of the most characteristic plants of tropical America, and one of the most useful. Small commercial plantations of it are reported from Yucatan, especially from Cozumel Island. Gann states that the Indians extract and utilize coconut oil like that of the corozo. The meat of the nut is used locally for making dulces, and the sweet clear liquid of the young nuts is a refreshing beverage, always cool, no matter how hot the air. The "milk" has diuretic properties, and the fruit is reputed efficacious in expelling intestinal parasites. The ancient Mayas made cups and other utensils from the shell of the fruit. The midrib of the leaf of this and other palms is called "chilib."

It is significant that no Maya name is recorded for the coconut. I believe that it lacks, likewise, an Aztec name, and it may well be, therefore, that the palm was introduced into the region even after the appearance of the Spaniards, although this is difficult to believe when one views the present abundance of this graceful tree along the coasts of Mexico and Central America. No other tree is quite so important in giving to tropical shores their distinctive appearance.

Inodes japa (Wright) Standl.

Sabal japa Wright. *S. mexicana* Millsp. FMB. 1: 11. 1895, 1: 355. 1898, not Mart.

Xaan, Xan. Sp. *Guano, Huano, Palma de guano.* Very common in dry forests, flowering throughout the year.—In Mexico this palmetto is known only from the Yucatan Peninsula, but it occurs also in Cuba. The trunk is reported to attain a height of 24 m.; the leaves are green and fan-shaped; the spadices are large and much branched; the fruit is a black berry 8–10 mm. in diameter. This palm is one of the most useful local plants, and is said always to be left standing when ground is cleared. The fruits are eaten by children. The leaves are used commonly for thatch and for making hats, mats, brooms, and other articles. The hats were formerly an important article of export to the United States. Rope is said to be made from the leaf fiber. The names "bayal," "bayal-xaan," and "bom" are reported for this species. Cuevas reports as varieties of guano "bon," "tulhoc," "xanilkax," and "cabalxaan," but some of these names may relate to other palms. The name guano seems to be of Carib origin. This species is probably the "bonxaan" of Tabasco.

The plant finds some use in local medicine, and is reported to have "tonic, nutritive and vitalizing" properties. The extract is said to calm irritation of the nervous system, and to stimulate digestion, increase appetite, and augment assimilation. Gaumer states that it is a powerful remedy in the treatment of diseases of the air passages, and that it is specific in various affections of the sexual system.

Phoenix dactylifera L.

Sp. *Dátil, Datilero.* The date palm, native of the Old World tropics, is planted infrequently.

Oreodoxa regia HBK.

Sp. *Palma real.* The royal palm, native in Cuba, Hispaniola, and Florida, is reported as planted for ornament. It is one of the handsomest of American palms, and is grown generally in tropical America.

Thrinax Wendlandiana Becc. *?T. parviflora* Millsp. FMB. 1: 11. 1895, not Swartz. *T. argentea* Millsp. FMB. 1: 355. 1898, 2: 30. 1900, not Lodd.

Chit. Common, especially in the coastal plain. Occurring also in Cuba, and reported from Honduras.—A low palm, usually about

3 m. high, unarmed, with fan-shaped leaves; fruits globose, about 1 cm. in diameter.—The fruits have a pleasant taste and are edible. The soft fiber produced on the trunk is said to be called "mirahuano," and is used for stuffing pillows and mattresses. Gaumer states that the plant is "tonic, corroborant, and vigorative. The extract possesses sedative properties, and is nutritive and diuretic. It is useful in the treatment of phthisis, bronchitis, and other affections of the air passages, and has a vitalizing effect upon the sexual system. In cases of debilitated sexual and digestive functions, with faulty assimilation and malnutrition, it produces very satisfactory results. It also develops the mammary glands." "Chit" is said to be the preferred spelling of the Maya name, although several other forms are reported, and to signify "burst into flower." This palm is said to flower twice, in March and May.

Thrinax parviflora has been reported from Cozumel Island, and it may be that two species of the genus occur in this region.

The names "tasiste" and "palmito" are reported for two palms of the Bacalar region which have not been identified.

BROMELIACEAE. Pineapple Family

Aechmea bracteata (Swartz) Mez. *A. laxiflora* Millsp. FMB. 1: 12. 1895, not Benth.

Xkeu, Xkeo, Chaccanahzihii (Gaumer). Izamal, Progreso, Chichankanab.—A large coarse epiphyte with spine-margined leaves; flowers very numerous, forming a large panicle.—The leaves are enlarged at the base, and contain a substantial quantity of water, which often is drunk by travelers in the forests.

Ananas magdalenae (André) Standl.

This important fiber plant is not represented by Yucatan specimens, but it occurs in Petén, Guatemala, and northward as far as Tampico, Mexico, and is pretty certainly to be found in southern Yucatan. In British Honduras it is called "silk-grass," and usually in Central America "pita floja." In Petén it is known as "piñuela." The plant is terrestrial, the leaves armed with prickles, which toward the apex of the leaf are small and closely set. The inflorescence is a large, dense, hard, bracted, red head. The leaves give a superior quality of fiber, notable for its strength and fineness.

Ananas sativus Schult. f.

Sp. *Piña.*—The pineapple is grown commonly in Yucatan, as in most other parts of tropical America. The plant is said to be a

native of Brazil. The Quiché name of Guatemala is reported as "mazati." The Pokoṇchí name is "ch'op"; the Mame name "chuba."

Bromelia Karatas L. *Karatas Plumieri* Morr.

Cham, Chom. Sp. *Piñuela. Wild pinguin* (B. H.). Common.—A terrestrial plant, the leaves long, spine-margined; flowers borne in a dense head nearly sessile among the leaves.—A sirup made from the fruit is used as a diuretic and as a remedy for intestinal parasites in children. Recent writers give the Maya name as "chom," but in the old dictionaries it is given as "cham."

Bromelia Pinguin L. *B. sylvestris* Willd.

Tsalbay. Sp. *Piñuela, Piñuelilla.* Common.—A terrestrial plant, similar to *B. Karatas*, but with a long-stalked paniculate inflorescence.—The yellow, very acid fruit is edible. The names "cham," "chom," and "hman" are reported for this species.

B. sylvestris is considered a distinct species by Mez, but it is certainly very close to *B. Pinguin.*

Hechtia Schottii Baker; Hemsl. Biol. Centr. Amer. Bot. 3: 318. 1884.

Endemic; type from Cerro de Maxcanu, *Schott 645.* Collected only at Xcholac and Maxcanu.—A coarse acaulescent terrestrial plant with long spine-armed leaves, small flowers in a large panicle, and capsular fruit.

Tillandsia Balbisiana Schult. *T. setacea* Millsp. FMB. 1: 356. 1898, not Sw.

Mérida, *Schott 842, 842a* in part; Izamal, *Greenman 403.*—Leaves numerous, with long narrow recurved blades, thin and inflated at base; scapes about 30 cm. high, bearing few compressed flower spikes.—All the plants of this genus are epiphytes. In Yucatan they are called "gallitos."

Tillandsia brachycaulos Schlecht.

Miz, Chu, Mexnuxib. Sp. *Gallitos.* Izamal, Mérida.—Pérez states that the "chu" is sometimes called "canazihil."

Tillandsia bulbosa Hook.

Chichankanab, *Gaumer 23722.*—The Maya name is reported from Petén, Guatemala, as "holunzial."

Tillandsia circinata Schlecht. *T. yucatana* Baker, Journ. Bot. Brit. & For. 25: 280. 1887.

Mérida, *Schott 250*.—Plants cespitose, 20 cm. high, stout, finely lepidote; leaves recurved, with broad bases.

Tillandsia dasyliriifolia Baker.

Mérida, *Schott 288*.

Tillandsia fasciculata Swartz. *T. fasciculata* var. *latispica* Mez in DC. Monogr. Phan. 9: 683. 1896.

Chuc, Xolohbenal (Schott), *Canazihil* (Gaumer). Izamal, Mérida. —Plants coarse and stout, 30 cm. high or larger; leaves numerous, erect, very narrow, with thick hard bases; scapes stout, bearing few or numerous broad thick spikes, the bracts indurate, closely imbricate.

Tillandsia recurvata L.

Common on trees.—Plants small, usually 15 cm. high or less, forming dense clumps; leaves narrowly linear, loosely scurfy; scapes slender, bearing a single few-flowered spike.

Tillandsia streptophylla Scheidw.

X-holom-x-al, Xoloblenal (Gaumer), *Xholobenal, Hkolomxal, Muliix*. Frequent.—Plants stout, about 30 cm. high, densely and loosely gray-lepidote; leaves numerous, spreading, often twisted; scape bearing one or several broad spikes.—Specimens collected by Schott were distributed as *T. anceps* Lodd.

Tillandsia usneoides L.

Mexnuxib, Meexnuxib, Soscilchac (Maler). Sp. *Barba española*. Probably common.—Spanish moss is a common epiphyte in many parts of Mexico and Central America.

Tillandsia utriculata L.

Frequent.—Plants often a meter high; leaves broad, finely lepidote, with long slender tips; inflorescence much branched.

Tillandsia vestita Schlecht. & Cham.

Xeen. Common.—Plants 20 cm. high or less, with short stems, clustered; leaves linear, coarsely lepidote; scapes stout, bearing one or more short dense terete spikes.

Tillandsia filifolia Schlecht. & Cham. has been reported from Yucatan (Millsp. FMB. 1: 12. 1895), but the specimens on which the record was based are said to have been collected in Tabasco. *T. polystachya* L. also has been recorded (Millsp. FMB. 1: 12. 1895), but the record is probably an error.

A plant reported by Cuevas (Pl. Med. 52. 1913) under the name "humpets-kin" may belong to the genus *Tillandsia*. The crushed leaves are applied as poultices to relieve neuralgia and headache.

Vriesia psittacina var. **decolor** Wawra, Oesterr. Bot. Zeitschr. 30: 183. 1880; Mez in DC. Monogr. Phan. 9: 581. 1896.

Reported from Yucatan by Mez, *Schott 75* being cited.

Two plants reported under the names "xceeb" and "pooxnuc" are said to belong to the Bromeliaceae, but their identity is doubtful.

LEMNACEAE. Duckweed Family

Lemna minor L.

Iximha. Without locality, *Gaumer 1437, 2393, 23234.—Duckweed.* A minute plant, floating on the surface of quiet water; thallus oblong or elliptic, green, each with a single root.—The specific determination of these collections is somewhat doubtful.

Wolffia brasiliensis Wedd.

Iximha. Izamal, *Gaumer 570;* Hacienda San Rafael Xteppen and Hacienda de Chablé, *Schott 541.*—An aquatic plant, consisting of a minute green thallus, without roots.

ARACEAE. Arum Family

Anthurium tetragonum Hook. var. **yucatanense** Engl.; Millsp. & Loes. BJE. 36: Beibl. 80. 12. 1905.

Ukutzhbox (Gaumer). Sp. *Tabaco de negro.* Type from Chichen Itzá, *Seler 3997;* Maxcanu, *Gaumer 23840;* Uxmal, *Schott 638;* Izamal, *Gaumer 741, Greenman 450.*

Caladium bicolor (Ait.) Vent.

Sp. *Papagayo, Manto de la reina.* Cultivated for its beautifully colored leaves. Native of tropical South America.—A terrestrial acaulescent plant; leaves broadly ovate, hastate, peltate, thin, handsomely blotched with red, pink, cream, or silver.—It is probably this plant which has been listed in local publications as *C. sagittaefolium,* a name referable to the genus *Xanthosoma.*

Monstera deliciosa Liebm.

Izamal, *Gaumer 1413, 23200, Greenman 453;* wild and cultivated. —A large glabrous epiphytic vine with huge, deeply pinnatifid leaves.—Often grown for the edible fruiting spadices, which are sweet and very juicy. The usual name in Mexico is "piñanona."

Philodendron oxycardium Schott. *P. trifoliatum* Millsp. FMB. 1: 355. 1898. *Arum italicum* Millsp. FMB. 1: 355. 1898, not Mill.

Akalkumche (Gaumer). Izamal, *Gaumer 1422, 23174, 23823, Greenman 376;* Mayapán, *Schott 836;* Mérida, *Schott 489;* Camino de Sacalamino, *Schott 630.*—A large glabrous epiphytic vine with broad, entire, deeply cordate leaves.

Philodendron lacerum (Jacq.) Schott.

Ochil (Gaumer). Chichen Itzá, *Schott.*—A large glabrous epiphytic vine with broad leaves pinnatifid into numerous narrow segments.—The specimens are sterile, and the determination therefore somewhat doubtful.

Pistia Stratiotes L.

Ibinha (Gaumer). Sp. *Lechuguilla.* Maxcanu, in water tanks, *Gaumer 23275.—Water-lettuce.* A floating aquatic plant, with a rosette of broad spongy leaves; very different in appearance from all other Araceae.—It is perhaps this plant which is listed in the Pérez dictionary under the name "xicinchah."

Syngonium podophyllum Schott. *Arisaema* sp. Millsp. FMB. 1: 355. 1898.

Ochil (Gaumer). Izamal, *Gaumer 1091, Greenman 375.*—A large glabrous epiphytic vine; leaves pedately parted into 5 or more oblong or oblanceolate segments.

Xanthosoma yucatanense Engl. BJE. 37: 138. 1906.

Xmacal (Schott). Endemic; type from Camino de Sacalúm, Yucatan, *Schott 630;* Izamal, *Gaumer 23831.*—A terrestrial acaulescent plant; leaves long-petioled, the blades broadly hastate-cordate.

Colocasia esculenta (L.) Schott is listed by Gaumer in his Sinonimía, with the Maya name "cucutmacal." It is probable that this plant is grown in Yucatan for its edible roots, but the Maya name may relate to *Xanthosoma.* Gaumer lists two other names, "yaaxtzotzmacal" and "chactzotzmacal," for plants presumably of this relationship. Calvino states that the "macal" is grown upon a small scale. It is the "malanga" of Cuba.

COMMELINACEAE. Dayflower Family

Callisia repens L.

A frequent weed.—A small fleshy creeping herb, glabrous except on the leaf sheaths; leaves ovate to lance-oblong, acute or acuminate; flowers small, white, in dense spicate clusters.

Commelina elegans HBK. *C. erecta* Millsp. FMB. 1: 13. 1895, not L. *C. virginica* Millsp. FMB. 1: 13. 1895, not L. *C. pallida* Millsp. FMB. 1: 356. 1898, not Willd.

Xhubulha, Pahtsa, Cabalzit (Gaumer), *Yaaxhaxiu* (Gaumer). Sp. *Colevil* (Gaumer), *Hierba de pollo.* A common weed.—A fleshy perennial herb, glabrous or nearly so, ascending; leaves ovate-oblong or lance-oblong, acute; flowers blue, subtended by a cuplike compressed spathe, with united margins.—Some specimens of this species (*Gaumer 376*) have been distributed as *Callisia repens*, but this number seems to have been a mixture. This is perhaps the plant which has been reported as *C. communis*, with the Maya name "cabalsit."

Commelina longicaulis Jacq. *C. nudiflora* Millsp. FMB. 1: 356. 1898, not L.

Bachaxiu (Gaumer). Sp. *Pajilla* (Gaumer). Probably common, but only two collections are known, *Schott 32* from Mérida, and *Gaumer 1231*, without locality.—A slender fleshy herb, glabrous or nearly so, ascending or prostrate; leaves petioled, ovate to oblong, acute or obtuse; flowers small, blue, the subtending spathe with free margins.

Rhoeo discolor (L'Hér.) Hance.

Chactsam, Chactsan, Yaxtsam, Yaxtsan, Yaxtsana, Yaxtsanah. Frequent, growing on walls of ruins and cenotes.—A low stout erect perennial herb with short stem; leaves numerous, strap-shaped, 15–40 cm. long, sessile; flowers white, in dense clusters subtended by a large foliaceous cup-shaped spathe.—The plant is grown commonly for ornament in tropical America. The leaves are usually dark red or purplish beneath, but sometimes green. Dr. Gaumer reports that the red form of the plant yields a bright red decoction, which is used as a cosmetic. When applied to the face or other parts of the skin it imparts a red color, and also irritates the cuticle, thus increasing the effect.

The name "chactsam" is derived from "chac," red, and "tsam," to soak in water. "Tsan" or "tsanah" signifies to bulge or ruin a wall, in allusion to the fact that the plant often grows upon walls.

Spironema fragrans Lindl.

Xcholac, *Gaumer 421;* Kancabtsonot, *Gaumer 23512;* without locality, *Gaumer 23968.* On rocks about cenotes.—A large perennial herb with fleshy oblong attenuate leaves, glabrous or nearly so; flowers small, white, in dense spicate-paniculate clusters.

Tradescantia cordifolia Swartz. *Callisia umbellulata* Millsp. FMB. 2: 31. 1900, not Lam. *T. floridana* Greenm. FMB. 2: 249. 1907, not Wats.

Frequent in moist soil.—A small creeping fleshy perennial herb, nearly glabrous; leaves ovate to oblong, acute, sessile or nearly so; flowers small, white, in peduncled clusters.

Zebrina pendula Schnizl.

Sp. *Cucarachita* (Gaumer). Cultivated at Izamal and San Anselmo, *Gaumer 412, 1756.*—A fleshy perennial herb, more or less pilose; leaves lance-oblong, acute or acuminate, dark purple beneath, the upper surface striped with green and silver.—A native of the mountains of Central America and the West Indies, and probably also of southern Mexico, this is the Wandering Jew with striped leaves which is a common house plant in the United States. It is grown for ornament generally in tropical America.

PONTEDERIACEAE. Pickerelweed Family

Heteranthera limosa (Swartz) Willd.

Hacolel. Izamal, *Gaumer 840;* Chichankanab, *Gaumer 1992.*—A small glabrous aquatic plant with blue flowers; leaves long-petioled, oblong-ovate or broadly ovate.

Eichhornia azurea (Swartz) Kunth, the water hyacinth, is listed in Gaumer's Sinonimía, with the name "jacinto de agua." It is probable that this and *E. crassipes* (Mart.) Solms, even if not native in Yucatan, are found there in cultivation.

LILIACEAE. Lily Family

Allium Cepa L.

Cucut (Gaumer). Sp. *Cebolla.*—The onion is grown commonly, as it is throughout tropical America.

Allium Porrum L.

Sp. *Puerro.*—The leek, reported in Gaumer's Sinonimía; it is little grown in tropical America.

Allium sativum L.

Cucut (Gaumer). Sp. *Ajo.*—Garlic is cultivated abundantly in Mexico and Central America, and is all too generally employed in seasoning food.

Allium Schoenoprasum L.

Sp. *Cebollina.*—Chives, whose leaves are used for seasoning food, is listed in Gaumer's Sinonimía. The plant is seldom grown in tropical America.

Aloe vera L.

Hunpetskinci (Gaumer). Sp. *Zábila.* Cultivated, and perhaps naturalized; native of the Mediterranean region.—*Aloe.* A large coarse stemless perennial; leaves strap-shaped, tapering to the apex, fleshy, the margins armed with short prickles; flowers borne in a dense bracted raceme, on a long scape.—Cuevas states that the crushed leaves are applied as poultices to reduce inflammation, and that the viscid sap is applied to boils to bring them to a head. The plant is employed also as a cathartic, and in the treatment of chlorosis, scrofula, indigestion, and anemia. Women wean children by rubbing on their breasts the bitter juice of the plant.

Asparagus officinalis L.

Sp. *Espárrago.* Reported as cultivated occasionally in Yucatan. Native of Europe and Asia.—Asparagus is rarely seen in tropical gardens.

Asparagus plumosus Baker.

Reported in Gaumer's Sinonimía. A native of South Africa, grown commonly for ornament in tropical America.

Asparagus Sprengeri Regel.

Listed in Gaumer's Sinonimía. An African plant, grown commonly for ornament in tropical America.

Beaucarnea pliabilis (Baker) Rose, CNH. 10: 89. 1906. *Dasylirion pliabile* Baker, Journ. Linn. Soc. Bot. 18: 240. 1880; Millsp. FMB. 1:12. 1895.

Tsipil (Gaumer). Endemic; type from Sisal, *Schott;* Kancabtsonot, *Gaumer 23520;* without locality, *Gaumer 24327.*—A large treelike plant sometimes 10 m. high; leaves linear, very long, smooth; flowers small, whitish, in large scarious-bracted panicles; trunk much thickened at base.

This plant has been reported (Millsp. FMB. 1: 9. 1895) from Yucatan under the fantastic name of "*Pandanus candelabrum* Beauv." The error seems to have resulted from an earlier published record.

Echeandia paniculata Rose. *E. terniflora* Millsp. FMB. 1: 292. 1896, not Ort.

Izamal, *Gaumer 843;* Chichankanab, *Gaumer 1995.*—A bulbous plant with widely branched panicles of small yellow flowers; leaves lance-linear, glabrous.—According to Weatherby, the determination of the Yucatan material is uncertain because of incompleteness of the specimens.

Lilium candidum L.

Sp. *Azucena.* Listed in Gaumer's Sinonimía.—A European species, grown commonly in Mexico and South America.

Nothoscordum bivalve (L.) Britton.

Without locality, *Gaumer 1455.*—A small bulbous plant with umbels of white flowers; in general appearance much like an *Allium,* but without alliaceous odor.

Yucca aloifolia L. var. **yucatana** (Engelm.) Trel. Rep. Mo. Bot. Gard. 13: 93. 1902. *Y. yucatana* Engelm. Trans. Acad. St. Louis 3: 37. 1873.

Tuc. Endemic; type from Nohpat, *Schott 706.*—A tree, the trunk sometimes 7 m. high; inflorescence tomentose; leaves linear, stiff; flowers large, white, campanulate.

Yucca elephantipes Regel.

Tuc. Pocoboch, Izamal; doubtless cultivated.—A tree about 6 m. high with few thick branches, and with large panicles of creamy white flowers; leaves linear, thick and stiff, sharp-pointed.—Flowers in June. Probably native in Veracruz, but naturalized in many parts of Mexico and Central America. In some regions the flowers are used as a vegetable, usually prepared by dipping them in eggs and frying.

The Kekchí name of *Yucca guatemalensis* Baker is reported as "kukilh," and some of the Guatemalan names listed for *Y. elephantipes* are "pasquiy" and "pasquí."

Dracaena americana Donn. Smith, a handsome tree resembling a Yucca, but with very small flowers arranged in large panicles, probably grows in Quintana Roo, because it is known from adjacent parts of British Honduras, where it is given the Spanish name of "cerbatana." In Guatemala it is called "caña de arco," and the Kekchí name is reported as "kukil."

SMILACACEAE. Sarsaparilla Family

Smilax mexicana Griseb. *S. Gaumerii* Millsp. FMB. 1: 357. 1898.

Xcoche (probably an error), *Xcoceh* (Gaumer), *Xcocehak, Coceeh, Coceh.* Sp. *Zarza, Zarzaparrilla.* Apparently common.—A large glabrous woody vine, armed with stout prickles; leaves short-petioled, lance-oblong to broadly ovate, leathery, glabrous; flowers small, brown-purple, in axillary umbels; fruit a black berry.—The type of *S. Gaumerii* was collected at Izamal, *Gaumer 687.* The plant is called "bejuco de chiquihuite" in Tabasco.

The Middle-American species of *Smilax*, especially those yielding sarsaparilla, are imperfectly known. Probably neither of the species here listed is a source of sarsaparilla, but that drug is said to be exported from Yucatan and Quintana Roo. Perhaps the source is *S. ornata* Lem., which is plentiful in adjacent Guatemala. The names "amakil," "zazaccoceh," and "ixtamal-tzuc" are reported for Yucatan plants of this genus.

Sarsaparilla is much used in medicine in the Peninsula. It has tonic, stimulant, and depurative properties, and is employed especially in the treatment of syphilitic affections, fevers, and rheumatism.

Smilax mollis Willd.

Without locality, *Gaumer 24276, 24401.*—A small unarmed vine, copiously pilose; leaves lance-oblong to oblong-ovate, cordate at the base; umbels long-stalked.—Called "bejuco de chiquihuite" in Tabasco.

DIOSCOREACEAE. Yam Family

Dioscorea alata L.

Macal, Maxcal, Maaxcal, Akilmacal. Sp. *Name.* Cultivated for its edible root, the white yam or water yam. Native, probably, of southern Asia.—A large glabrous herbaceous vine; leaves ovate, long-acuminate, cordate at base; stems narrowly winged.—The yams are important food plants in tropical America, filling, to a large extent, the place occupied in the North by potatoes. Most of those grown in tropical America are believed to have been introduced by the early slaves. The Maya name is said to signify "monkey neck," given because of the form of the stem. Gann gives the name of the yam as "xaci macal," a term referring, perhaps, to some special variety. Pérez reports a plant called "maxcaltzotz," which

"is of the same genus" as the common yam, "but poisonous." It may be one of the native species. In local Yucatan literature the yam has been listed as *Caladium esculentum*. One of the cultivated yams is said to be called "macal box."

Dioscorea bulbifera L. *D. sativa* Millsp. FMB. 1: 357. 1898, not L.

Bauiak. Sp. *Volador*. Cultivated occasionally; native of tropical Asia.—A large glabrous herbaceous vine; stems not winged; leaves broadly cordate, abruptly acuminate; flowers in very long, slender, fascicled spikes.—The roots are eaten, also the large bulblets borne in the axils of the leaves.

Dioscorea convolvulacea Schlecht. & Cham.

Chichankanab, *Gaumer 1582;* without locality, *Gaumer 927*.—A slender vine; leaves ovate-cordate, puberulent, acute; flowers minute, green, in long slender interrupted spikes.

Dioscorea densiflora Hemsl.

Reported from Cozumel Island, *Gaumer* in 1886. Not seen by the writer, and the record doubtful.

Dioscorea matagalpensis Uline.

Without locality, *Gaumer 1391, 24331*.—A slender glabrous vine; leaves small, deltoid-cordate, acuminate; flowers minute, in small spicate clusters.

Dioscorea pilosiuscula Bert.

Izamal, *Gaumer 2041*.—A slender vine, sparsely pilose; leaves triangular, subcordate, acute; flowers pubescent, in loose, spicate or racemose clusters.

Dioscorea polygonoides Humb. & Bonpl.

Common; Izamal, *Gaumer 928;* Chichankanab, *Gaumer 1579;* Suitún, *Gaumer 23432, 23433, 23434, 23435;* Mérida, *Schott 929*.—A large coarse glabrous vine; leaves broadly cordate, acuminate; flowers minute, green, in long slender interrupted spikes; fruit an oval, deeply 3-lobed capsule 2 cm. long.—The plant is said to have medicinal properties.

Dioscorea spiculiflora Hemsl. Biol. Centr. Amer. Bot. 3: 361. *pl. 92*. 1884. *D. floribunda* Millsp. FMB. 1: 357. 1898, not Mart. & Gal. *D. macrostachya* Millsp. FMB. 1: 357 in part. 1898, not Benth.

Akilmacalkuch (Gaumer). Type collected in Yucatan by Linden; without locality, *Gaumer 794* in part, *898, 925, 926, 1578;* Izamal,

Gaumer in 1904; Buena Vista, *Gaumer* in 1899.—A large glabrous vine; leaves broadly cordate, acute; flowers in long lax panicled spikes.—Called "corrimiento" in Tabasco.

Dioscorea synandra (Uline) Standl., comb. nov. *Higginbothamia synandra* Uline, FMB. 1: 415. *pl. 22*. 1899.

Endemic; type from Yucatan, *Gaumer 794* in part; without locality, *Gaumer 928, 1580*.—A slender glabrous vine; leaves broadly cordate, acuminate; flowers in long racemes.

Dioscorea yucatanensis Uline, FMB. 1: 416. 1899.

Type from Izamal, *Gaumer 927* in part; without locality, *Gaumer 1120* in part; endemic.—A slender glabrous vine; leaves small, ovate-cordate, acute; flowers minute, green, glabrous, in short spikes.

AMARYLLIDACEAE. Amaryllis Family

Agave americana L. is listed by Gaumer as cultivated for ornament, with the name "maguey." The determination is doubtful.

Agave angustifolia Haw.

Babci (Gaumer). Reported from Yucatan and Campeche; originally described from plants grown in Europe.—Plants subacaulescent; leaves gray-green, 40–65 cm. long, 8 cm. wide, with a stout red-brown terminal spine 2.5-4 cm. long, the margins with slender teeth 3–5 mm. long and 2–2.5 cm. apart.

Agave decipiens Baker, Kew Bull. 1892: 183. 1892. *A. laxifolia* Baker in Curtis's Bot. Mag. 122: *pl. 7477*. 1896.

This species was described from plants cultivated in Europe, and grown in southern Florida, to which they are believed to have been imported from Yucatan. *Gaumer 23164*, from Izamal, has been referred here.—Plants with a trunk 2–3 m. tall; leaves green, rather fleshy and concave, 70–125 cm. long, 4–10 cm. wide, the dark chestnut terminal spine 1–2.5 cm. long, the marginal teeth slender, flexuous, 2 mm. long, 1–2.5 cm. apart.

Agave fourcroydes Lem. Ill. Hort. 11: Misc. 65. 1864. *A. rigida* var. *elongata* Baker, Kew Bull. 1892: 33. 1892.

Sacci. Sp. *Henequén, Henequén blanco*. Planted upon a large scale; the species was described from plants cultivated in Europe.—Trunk 1.5 m. high or less; leaves bluish gray, 1.3–2.5 m. long, 8–10 cm. wide, rather flat, with a black-brown terminal spine 2–3 cm.

long, the marginal teeth blackish, upcurved, 1–4 mm. long, 1–2 cm. apart.

This is the Agave most extensively planted in Yucatan as the source of henequen fiber, the most important export of the country. The fiber is employed for the manufacture of binder twine, and is the principal fiber used for that purpose. In 1923 about 280,000,000 pounds of henequen were exported from Yucatan. There are very large plantations of this and related species in the eastern part of the Peninsula. The most recent and accurate information concerning the industry is contained in Bulletin 1278 of the United States Department of Agriculture (1924), "Production of Henequen Fiber in Yucatan and Campeche," by H. T. Edwards.

The taxonomy of the Yucatan Agaves is still in a confused condition because the plants have not been studied carefully by any botanist. There is said to be much confusion locally, also, as to the vernacular names applied to the plants, probably because the forms are so much alike. It is stated by Edwards that eight varieties are recognized locally, but some writers indicate an even larger number.

Agave ixtli Karw. in Salm-Dyck, Hort. Dyck. 8: 304. 1834. *A. silvestris* D'Utra, Bol. Agr. S. Paulo 1909: 169. 1909. *A. minima* D'Utra, Bol. Agr. S. Paulo 1909: 169. 1909. *A. prolifera* Schott in sched.

Babci, Chelem, Chelemci, Chucum, Chucumci, Citamci (reported also as "cintanci"), *Pitaci* (Sp. and Maya), *Xixci, Xtucci.* Cultivated extensively, the type grown in Europe from Yucatan.—Plants acaulescent or with a short trunk; leaves grayish but greener than in *A. fourcroydes,* often marked with small brownish spots, somewhat concave, short, the spine and prickles much as in *A. fourcroydes.*

The name *A. ixtli,* in its narrowest sense, applies to the "xixci," which is said to be a form with small leaves and inferior fiber. *A. silvestris* is the "babci" and "chelemci," which is said to be a wild form with small leaves. *A. minima* is the "chucumci" (reported also as "chucunci") and "citamci," which is planted commonly.

These plants were doubtless important to the early Mayas as a source of cordage. Hammocks were, and still are, made from the fiber, which served also for bowstrings. "Ci" is the generic name for the Agave plant. The extracted fiber is called "zozci" or "zozcil" ("zuccil," the ancient form, according to the Motul Dictionary). "Bob" is the name given to the flower stalk. "Kan" is cord made

from henequen fiber, and this word is also the name of one of the twenty days of the Maya calendar.

The Maya manuscripts are said to be written on paper made from Agave leaves, which was rubbed with finely powdered lime to give it a smooth surface. Books were written also upon deerskin.

Agave sisalana Perrine, U. S. Sen. 25th Congr. Sess. 2. Doc. 300. *pl. 1, 2, 4.* 1838. *A. rigida* var. *sisalana* Baker, Kew Bull. 1889: 254. 1889. *A. sisalana* f. *armata* Trel. Mem. Nat. Acad. Sci. 11: 49. 1913. *A. siciliana* Dondé, Apuntes 124. 1907.

Yaxci. Sp. *Henequén verde.* Cultivated on a small scale; originally described from plants grown in Florida.—Plants acaulescent; leaves bright glossy green, nearly flat, 150 cm. long, 10 cm. wide, with a chestnut terminal spine 2–2.5 cm. long, the margin unarmed or with a few rudimentary teeth, rarely very prickly (f. *armata*).—In Yucatan the fiber of this species is said to be used only for making hammocks. The plant, however, is grown in other regions, such as Java, East Africa, and the Bahamas, for its fiber, sisal or sisal hemp. The name sisal is given because of the fact that the fiber was first exported from Yucatan through the old port of Sisal.

Furcraea cahum Trel. Ann. Jard. Bot. Buitenzorg II. Suppl. 3: 908. *pl. 39.* 1910.

Cahum, Cahumci. Endemic; type from Sisal, *Schott 809.*—Plants subacaulescent; leaves narrow, green, flat, 5–6 cm. wide, the margins with short blackish teeth, the apex sharp-pointed; inflorescence a tall panicle, producing bulblets.—This plant probably is not grown for fiber, although fiber may have been extracted from the young leaves in earlier times. It is reported that one or more forms of Agave are called "cahumci" or "cahunci."

The Quiché name of *Furcraea quichensis* Trel. is "chich."

Hippeastrum puniceum (Lam.) Urban. *Amaryllis equestris* Ait.

Sp. *Adonis, Azucena roja.* Cultivated for ornament. Native of tropical America, but probably not known in a wild state in Mexico or Central America.—*Amaryllis.* A handsome bulbous plant with large red flowers.

Hymenocallis americana (Jacq.) Salisb. *H. lacera* Millsp. FMB. 1: 292. 1896, not Salisb.

Sp. *Lirio.* Collected at Chiceh and Izamal.—*Spider lily.* A bulbous plant of wet soil, with long broad strap-shaped leaves and

with umbels of handsome long-tubed white sweet-scented flowers.—Frequently cultivated in gardens of Mexico and Central America. The plant often grows along seashores, or in brackish marshes near the beach. Maler reports from Chiapas and Guatemala the name "anaite" for a plant which is probably of this species.

Polianthes tuberosa L.

Sp. *Nardo, Azucena.* Cultivated for ornament.—*Tuberose.* A native of the mountains of Mexico, grown commonly in American gardens for its white, exceedingly fragrant flowers.

Zephyranthes citrina Baker. *Z. Lindleyana* Millsp. FMB. 1: 357. 1898, not Herb.

Cucutchom. Sp. *Mayito.* Chichankanab, *Gaumer 1363;* Izamal, *Gaumer 836;* Pocoboch, *Gaumer 2361.*—A small bulbous plant with bright yellow flowers 3–4 cm. long.—*Z. citrina* was based on a cultivated plant reported to have come from Demerara, but the locality may well have been an erroneous one, as is so frequently the case with cultivated plants. The Yucatan plants agree with the original plate and description (Curtis's Bot. Mag. 108: *pl. 6605.* 1882), except for their slightly shorter perianth. The form of the stigma is certainly the same, and very few species of *Zephyranthes* have a short subcapitate stigma of this type. It may be, of course, that the Yucatan plant represents an undescribed species, but I should hesitate to describe it without comparison with authentic material of *Z. citrina.*

Zephyranthes Lindleyana Herb.

Sp. *Mayito.* Chichankanab, *Gaumer 1484.*—Leaves long, linear, somewhat fleshy; flowers deep rose, 3–3.5 cm. long.—Here probably belongs a plant from Buena Vista Xbac, which has been determined as *Z. rosea* Lindl., a Cuban species. *Z. Lindleyana* is a favorite garden plant of Central America.

IRIDACEAE. Iris Family

Cipura paludosa Aubl.

Izamal, *Gaumer 734, Gaumer* in 1904; without locality, *Gaumer 24092.*—A small bulbous herb with grass-like leaves and delicate white flowers.

Tigridia violacea Schiede.

Reported from Yucatan, *Linden 227.*—The report is based upon Hemsley's record of the species.

Nemastylis Becquaertii Standl. Journ. Arb. 11: 47. 1930.

Type from Chichen Itzá, *Becquaert 109;* also in British Honduras. —A slender herb about 30 cm. high from a bulblike corm; scapes branched, bearing several spathes, these about 6-flowered, the bracts 2–3 cm. long, leaves linear, the basal ones 13 mm. wide, 5-nerved; flowers blue, the perianth nearly 1 cm. long.

MUSACEAE. Banana Family

Musa paradisiaca L

Haaz. Sp. *Plátano.* Commonly cultivated.—*Plantain.* A native of Asia, now grown throughout the tropics. The plantain is one of the most important food plants of tropical America, taking the place, to a large extent, that is filled by the potato in the North. It is unfortunate that the fruit is so little known in the United States, for a plantain properly cooked is one of the best of foods, and the fruit could be imported even more easily than bananas.

Musa sapientum L.

Haaz, Sachaaz, Boxhaaz. Sp. *Guineo.* Grown commonly for its fruit.—*Banana.* The banana was doubtless introduced into the Peninsula soon after the arrival of the Spaniards, having been brought first to the West Indies from the Canaries. Several varieties besides the common banana (guineo) are grown in Yucatan. Gaumer mentions the "plátano rojo" or red plantain, and the "chachaaz" or "plátano morado." Cuevas states that the young leaves of the "boxhaaz" are crushed and applied as a poultice to relieve pain in the chest. The Pokonchí name of the banana is given as "ts'ahlec" and "tulul."

Heliconia latispatha Benth. is called "suk" in the Kekchí dialect. For a species of the genus Maler reports the name "chancala" from the Mayas of Chiapas. He states that the black spherical seeds are used for necklaces. Therefore the plant is probably rather a *Canna* than a *Heliconia.*

CANNACEAE. Canna Family

Canna edulis Ker. *C. speciosa* Cuevas, Pl. Med. 32, Ilustr. *pl. 7, f. 1.* 1913, not Rosc.

Chankala. Sp. *Platanillo, Lengua de dragón.* Izamal, *Gaumer 963;* Chichen Itzá, *Millspaugh 1636;* San Anselmo, *Gaumer 2102.* Frequent in wet soil.—A coarse glabrous herb 1 m. high or larger, with thick rootstocks and large broad leaves; fruit a tuberculate

capsule containing several large rounded hard black smooth seeds.—The determinations of both the species here listed are somewhat uncertain. Both plants have showy, red or yellow flowers. No doubt some of the large-flowered cannas of hybrid origin are grown for ornament in the Peninsula.

Cuevas states that the crushed leaves and roots are applied as poultices to relieve nervous pains and the pain caused by spider bites. In some regions of the tropics canna roots are cooked and eaten.

Canna indica L.

Reported (Millsp. FMB. 1: 13. 1895) as collected on Cozumel Island by Gaumer.

ZINGIBERACEAE. Ginger Family

Costus spicatus (Jacq.) Sw.

Pahtsab. Sp. *Tirabuzón.* Izamal, *Gaumer 23315*, growing about aguadas; without locality, *Gaumer 23194*.—A tall herb with densely leafy stems, the leaves broad, glabrous; flowers collected in a dense headlike terminal spike, the broad bracts closely overlapping.—The Kekchí names for plants of this genus are given as "ku" and "pakuite."

Curcuma longa L.

Sp. *Curcuma.* Listed by Gaumer as in cultivation.—*Turmeric.* A native of the East Indies. Often grown in tropical America for its rootstocks, which yield a yellow dye.

Renealmia aromatica (Aubl.) Griseb. *R. occidentalis* Sweet.

Nabay (Petén). No specimens seen from Yucatan, but the species has been collected in Petén, Guatemala, and doubtless occurs farther northward.—A tall coarse herb, 2–2.5 m. high, with thick roots and broad leaves; panicles arising from the base of the plant, 20–30 cm. long, the corollas yellow; fruit a red globose capsule 7 mm. in diameter.

Zingiber officinale Rosc.

Sp. *Jengibre.* Cultivated in Yucatan.—*Ginger.* A native of the Old World, grown in tropical America for its aromatic rootstocks, which are used as a condiment and in medicine.

MARANTACEAE. Arrowroot Family

Maranta arundinacea L.

Chaac. Sp. *Sagú, Sagú del monte.* Apparently common; sometimes cultivated.—*Arrowroot.* A large slender glabrous branched herb with tuberous rootstocks and large white flowers; leaves long-petioled, or the upper nearly sessile, ovate, acuminate.—Sometimes cultivated for the starch obtained from the roots. Maranta starch was exported formerly from Cozumel Island, and probably from other localities. Gann reports that the roots, eaten raw, are regarded by the Indians of the eastern part of the Peninsula as a good remedy in all bladder and urethral complaints.

Thalia geniculata L.

No specimens seen from the area of this flora, but the plant occurs in Petén, Guatemala, and in Tabasco, and doubtless is found within Campeche or Yucatan. It is a tall herb of marshes, with purple flowers. Known in Tabasco as "quentó."

ORCHIDACEAE. Orchid Family

The determinations of the orchids in the following list have been verified by Professor Oakes Ames. The number of species known from the Peninsula is surprisingly small, probably because the plants have not been collected exhaustively. The climate of northern Yucatan is presumably too dry for most orchids, but in the south there must be many more species.

Brassavola cucullata (L.) R. Br.

Tsilám and Buena Vista Xbac, *Gaumer 798;* Sitilcum, *Gaumer 23372, G. J. Gaumer 1.*—Epiphytic, growing in large masses on trees; leaves narrowly linear; flowers large and showy, the sepals and petals linear-attenuate.

Brassavola Digbyana Lindl. *Laelia Digbyana* Benth.

Tsilám, *Gaumer 667;* Izamal, *Gaumer 23147;* Libre Unión, *Gaumer 23357;* Chichankanab, *Gaumer 23752* (?; sterile); without locality, *Gaumer 24078.*—Epiphytic; leaves oblong, obtuse, thick; flowers large, the petals and sepals oblong, the lip with a dense long fringe.—The plant is reported to have medicinal properties.

Catasetum maculatum Kunth.

Chitcuuc. Izamal, *Gaumer 847, 23178, 23815.*—Epiphytic on trees, blooming from August to October; leaves large, oblanceolate,

thin, conspicuously nerved; flowers large and showy, in a few-flowered long-stalked raceme.—The viscous sap of the pseudobulbs is used like glue for mending the wood of violins.

Cyrtopodium punctatum Lindl.

Chitcuuc. Nohcacab, *Schott 806;* Kabah, *Schott 705;* Chichankanab, *Gaumer 1357;* Labna, *Stone 281.*—Epiphytic; leaves lance-linear, long-acuminate, thin, 3-nerved.—This is apparently the orchid which has been reported by local botanists as *"Cypripedium Calceolus* L.," although the reports may relate rather to *Catasetum.*

Epidendrum alatum Batem.

Tsilám, *Gaumer 988;* Izamal, cultivated, *Greenman 451;* without locality, *Gaumer 23812;* Kancabtsonot, *Gaumer 23916* (a small form).—Epiphytic in dry forests; pseudobulbs narrow, the leaves linear, thick; flowers numerous, in an open panicle.

Epidendrum imatophyllum Lindl.

Without locality, *Ames 106.*—Plants without pseudobulbs; peduncle elongate, the flowers rose-purple or rose-pink.

Epidendrum Stamfordianum Batem.

Izamal, *Gaumer 23175, 23196; Gaumer* in 1888; Kancabtsonot, *Gaumer 23511.*—Forming large masses on trees; leaves oblong or elliptic, obtuse, thick; flowers in large panicles.

Epidendrum xipheres Reichenb. f. *E. yucatanense* Schlechter ex Millsp. & Loes. BJE. 36: Beibl. 80: 12. 1905, nomen nudum.

Izamal, *Gaumer 588, Greenman 445;* Chichánkanab, *Gaumer 1860;* Chichen Itzá, *Millspaugh 1640;* Xcholac, *Stone 249;* Pisté, *Seler 3989.*—Epiphytic in dry forest; plants small, in dense masses, the pseudobulbs ovoid; leaves linear; flowers in few-flowered narrow panicles.

Harrisella porrecta (Reichenb. f.) Fawc. & Rendle.

Tsilám, *Gaumer 660;* Suitún, *Gaumer 23359.*—A small plant, 5–10 cm. high, epiphytic on tall shrubs; leaves deciduous; flowers in short panicles.

Ionopsis utricularioides Lindl.

Labcah, *Schott 529;* Tsilám, *Gaumer 672;* Suitún, *Gaumer 23305.* Flowering in May.—A beautiful small epiphyte with bright lilac flowers; leaves broadly linear.

Schott 798 from Nohpat, without flowers, is perhaps *Laelia rubescens* Lindl.

Two collections by Gaumer, *No. 660 bis* from Tsilám, and *No. 23358* from Suitún, perhaps represent the genus *Leochilus*. Both specimens lack flowers.

Notylia multiflora Lindl.

Yaxcabi, *Gaumer 1095*.—An epiphyte with small pseudobulbs; leaves oblong; flowers small, in a long many-flowered raceme, the pedicels recurved.

Oncidium adscendens Lindl. *O. cebolleta* Sw.

Putsche, Ahoche (Gaumer). Izamal, *Gaumer 401, 429;* Pisté, *Millspaugh 1617;* Xcholac, *Stone 250;* Pisté, *Seler 3990;* Chichankanab, *Gaumer 23688;* Izamal, *Gaumer* in 1888; between Dzita and Chichen Itzá, *Ames 104*.—Epiphytic; leaves subterete, slender, fleshy; flowers panicled, brown and yellow.

Oncidium carthaginense (Jacq.) Sw.

Izamal, *Gaumer 401;* Nohpat, *Schott;* Chichankanab, *Gaumer 1536;* Libre Unión, *Gaumer 23202;* Hotos, *Gaumer 23813, 23814*.—A common epiphyte with small showy yellow flowers in large broad panicles, blooming from October to May; leaves large, oblong.

Oncidium pusillum (L.) Reichenb. f.

Izamal, *Gaumer* in 1895.—Epiphytic on shrubs; plants small, the leaves linear, equitant; scapes 1–few-flowered.

Oncidium sphacelatum Lindl.

Chichankanab, *Gaumer 23664*.—Growing in dense clumps on the trunks of large trees; flowering in April; leaves long, linear; flowers in large broad panicles.

Schomburgkia tibicinis Batem.

Tsilám and Xcholac, *Gaumer 431;* Chichankanab, *Gaumer 1768;* Progreso, *Schott 270;* Tsilám, *Gaumer 23256;* Telchac, *Gaumer 23333*. —An epiphyte with large, bright purple flowers, the racemes often 2 m. long; leaves oblong, thick, obtuse.

Spiranthes acaulis (Smith) Cogn. *S. orchioides* Millsp. FMB. 2: 32. 1900, not L. Rich.

Pisté, *Millspaugh 1616*.—Terrestrial in deep forest, the scape tall, glabrous, bracted, the large flowers in a long raceme; leaves absent at time of flowering.

Spiranthes polyantha Reichenb. f.

Cutziz (Gaumer). Xcholac, *Gaumer 442;* Sayil, *Ames 102.*—Plants 30–60 cm. high, growing in crevices of rocks; flowers small, dull red; leaves present at flowering time.

Stenorrhynchus orchioides (Sw.) L. Rich. *Spiranthes orchioides* A. Rich.

Sp. *Terciopelo* ("velvet"). Mérida, *Schott 396;* Izamal, *Gaumer 874;* Suitún, *Gaumer 23298;* without locality, *Gaumer 24082;* Pisté, *Millspaugh 1616.*—A terrestrial plant, 60–90 cm. high, with a cluster of fleshy roots; flowers red, showy, in a dense long-stalked raceme; leaves basal, absent at time of flowering.

Triphora yucatanensis Ames, Orchid. 7: 39. *pl. 109.* 1922.

Known only from the type, collected near Izamal, *Gaumer 1008.*—Terrestrial, 10 cm. high; leaves ovate to lanceolate, 10–17 mm. long; flowers white, tinged with purple.

Vanilla fragrans (Salisb.) Ames. *V. planifolia* Andr.

Zizbic, Zizbickax. Sp. *Vainilla, Canela de cuya.* Common in forests and scrublands.—*Vanilla.* A large vine, forming dense masses over low shrubs, or climbing to the tops of the highest trees.—The dried seedpods are the "vanilla beans" of commerce. The pods are used in Yucatan for flavoring chocolate, and in local medicine for their supposed excitant and aphrodisiac properties. Vanilla was formerly an article of commerce in the region, but it is now of little importance. Most of the world's supply of this native American plant is derived from plantations in the tropics of the Old World.

Gann states that the "leaves of a species of vanilla called *chichle* are used to flavor tobacco, giving it a distinctive flavor and fragrance." The plant so utilized is probably not a *Vanilla.* In the Kekchí dialect vanilla is called "chesivik."

CASUARINACEAE. Beefwood Family

Casuarina equisetifolia L.

Sp. *Pino, Ciprés.* A native of tropical Asia and Africa; a common shade tree of the Peninsula.—*Beefwood.* In general appearance the tree resembles a conifer; its branches are whorled, and their leaves reduced to small scales. It grows rapidly. The wood is used locally for cart axles, and for various other purposes.

PIPERACEAE. Pepper Family

Peperomia crassiuscula Millsp. FMB. 2: 33. 1900.

Endemic; known only from the type, collected at Chichen Itzá, *Millspaugh 1628*.—An epiphytic herb, glabrous, fleshy; leaves verticillate, petiolate, elliptic, obtuse, entire; flowers minute, green, in dense long stout terminal spikes.

Peperomia glutinosa Millsp. FMB. 1: 293. *pl. 12*. 1896.

Endemic; type from Izamal, *Gaumer 435;* Chichankanab, *Gaumer 23697;* San Anselmo, *Gaumer 1769*.—An epiphytic herb with fleshy, simple or branched stems; leaves opposite or the upper verticillate, petioled, broadly elliptic, acute or obtuse, fleshy; flowers in very long and slender spikes.—A *Peperomia* very similar in general appearance has been collected in Petén, Guatemala, with the Maya name "mahauchuuncaac."

The plant listed by Cuevas (Pl. Med. 62, Ilustr. *pl. 11, f. 2*. 1913) as "mahanchunkak" belongs to some other family, if the illustration is correct.

Peperomia pellucida (L.) HBK.

Apparently a common weed.—A small fleshy terrestrial annual, glabrous, branched; leaves slender-petioled, broadly ovate, obtuse or acutish; flowers in short slender spikes.

Piper auritum HBK.

Xmakulam. Maculan (Motul Dict.). Sp. *Momo* (Gaumer). Common in moist places.—Plants suffrutescent or herbaceous, 1–2 m. high, very fragrant when crushed, with an odor resembling that of sarsaparilla; leaves large and deeply cordate; flowers in long, stalked, very dense spikes.—The fruit has an agreeable flavor, and the leaves are used for flavoring various dishes. Gaumer states that the plant has diaphoretic, diuretic, and stimulant properties, and that it has been utilized in the treatment of fevers, erysipelas, gout, and angina. Cuevas reports (Pl. Med. 62, Ilustr. *pl. 9. f. 2*) that the leaves are applied as poultices to relieve pain. According to the Motul Dictionary, the leaves were heated and applied to wounds. The Kekchí name is "xaklipur."

Piper cordoncillo Trel. var. **apazoteanum** Trel. Journ. Washington Acad. Sci. 19: 331. 1929.

Type from Apazote, Campeche, *Goldman 475* in 1900.—The type of the species is from Tabasco, where the plant is called "cordon-

cillo." This is the name usually applied to species of *Piper* in most parts of Central America and Mexico.

Piper Gaumeri Trel. Journ. Washington Acad. Sci. 19: 332. 1929. *P. medium* Millsp. FMB. 1: 293. 1896, not Jacq.

Yaxtehc-che, Yaxtec-che, Yaaxpehelche (Gaumer). Endemic; type from Buena Vista Xbac, *Gaumer 783;* Chichankanab, *Gaumer 23678;* without locality, *Gaumer 23973, 24383.*—A shrub 2.5 m. high; leaves short-petioled, broadly elliptic-ovate, abruptly acuminate, glabrous or nearly so.—A plant similar in general appearance has been collected in Petén, Guatemala, with the Maya name "kuksub."

Piper yucatanense C. DC. Linnaea 37: 334. 1873.

Endemic; type collected in Yucatan by Linden (*No. 184*); Tizimin, *Schott 775;* Izamal, *Gaumer* in 1888.—A slender shrub; leaves slender-petioled, broadly ovate, acuminate, subcordate at the base, glabrous or nearly so; spikes short, stalked.

In southern Yucatan there must be numerous species of *Piper* besides those listed here.

MYRICACEAE. Bayberry Family

Myrica cerifera L. *M. mexicana* Standl. CNH. 23: 164. 1920, in part, not Willd.

Tea bark, Tea box (B. H.). Puerto Morelos, in mangrove swamps, *Goldman 623.*—A shrub or small tree, the small narrow leaves dotted beneath with waxy glands.—In some parts of its wide range wax is obtained from the small hard spherical nutlike fruits by boiling them in water. The wax is used frequently for making candles, which have a characteristic greenish color, and burn with a peculiar agreeable fragrance.

The Pokonchí name for a species of *Salix* or willow is reported as "c'os." The names "pitan" and "zinuh" are reported for species of oaks or *Quercus* in the same dialect. No oaks have been reported from Quintana Roo or Yucatan, but they grow in near-by British Honduras.

ULMACEAE. Elm Family

Celtis iguanaea (Jacq.) Sarg. *Mertensia laevigata* HBK.

Zitsmuc, Muc. Common in scrublands.—A spiny shrub or small tree, often subscandent, flowering in March, the small yellow fleshy

fruit ripening in May and June; leaves alternate, oblong to elliptic or oval, short-petioled, 3-nerved, serrate or nearly entire, glabrate; flowers small, greenish yellow.—The fruits are eaten by children and birds.

Trema micrantha (L.) Blume.

Apparently common, although not reported previously from the region; *Gaumer 1112, 1414, 23530, 24009, 24068, 24386.*—A small tree with rough pubescence; leaves short-petioled, oblong-ovate, acuminate, obliquely cordate at base, finely crenate, pale beneath; flowers small, green, in dense axillary clusters; fruits very small, fleshy, clustered, red.—The bark contains a strong tough fiber. The wood is light, soft, and close-grained. The Kekchí name is reported as "kib."

MORACEAE. Mulberry Family

Artocarpus communis Forst. *A. incisa* L. f.

Sp. *Arbol de pan.* A native of the Pacific islands, cultivated as a shade tree in the Peninsula.—*Breadfruit.* This tree makes one of the handsomest shade trees because of its dense foliage and symmetrical crown. The large leaves are usually pinnate-lobed. The fruit is globose or oval, rough, green, and about 30 cm. long. The young fruits are often cooked and eaten, especially by the negro inhabitants of Central America, with whom it is a favorite vegetable.

Brosimum Alicastrum Sw. *Alicastrum Brownei* Kuntze.

Ox. Sp. *Ramón* (Yuc., B. H.), *Capomo, Masico* (B. H.). *Breadnut, Wild Cherry* (B. H.). One of the most common trees of the Peninsula.—*Breadnut.* A large or medium-sized tree with milky sap, sometimes 18 m. high, with a trunk 1 m. in diameter; leaves small, elliptic or oval, acute or acuminate, entire, glabrous; fruit subglobose, yellow or orange, containing a single large seed about 12 mm. in diameter.—This is one of the most important trees of Yucatan because of its great value as a forage plant. The leaves and young branches are cut and fed to horses and mules, often, especially during the dry season, being the chief or only food given them. The wood is useful for many purposes, especially for the curved parts of farming machinery. The pulp of the fruit is edible, and the seeds, when boiled, are nutritious, somewhat resembling potatoes in flavor. They are eaten alone or with plantains, maize, or honey; when roasted, also, they are good to eat. When dried they are ground into a meal, from which a kind of bread is made, and they are also

boiled and made into a sweetmeat. The milky latex, which flows freely from a cut in the trunk, resembles cream, and when diluted with water is reported to afford a satisfactory substitute for milk. Diviners' rattles or *sonajas* were made by placing ramón seeds in a hollow calabash.

The tree is much used locally in domestic medicine. The milk in water is administered as a remedy for asthma and bronchitis. The seeds are eaten by nursing women to promote the secretion of milk.

Castilla elastica Cerv. *C. gummifera* Pittier.

Yaxha, Kiikche; reported as "kiche." Sp. *Hule, Ule, Caucho.* Frequent in the southern part of the Peninsula, and often planted elsewhere.—*Mexican rubber tree.* A large tree, often 15 m. high, with deciduous branchlets and large drooping leaves; leaf blades oblong, abruptly short-acuminate, cordate at the base, entire, densely velvety-pubescent; flowers borne on flat many-flowered receptacles, these red at maturity.—From incisions in the bark there flows a white latex which, on coagulation, yields a good quality of rubber. The tree grows rapidly from seed, and is said to be ready for tapping at the age of 8–10 years. The rubber was well known to the ancient inhabitants of Mexico, who made from it balls which they used in certain games. Courts in which these popular games were played are found in some of the ruined Maya cities. The Mayas probably employed the rubber also for waterproofing garments. The best raincoats now procurable for use in tropical rains are those made in Central America and Mexico by coating heavy cotton cloth with this crude rubber. Gaumer states that the pulp surrounding the seeds of *Castilla* is edible.

The name "yaxha" is perhaps derived from *yax*, green, and *hal*, skirt, in allusion to the drooping leaves; "kiikche" from *kiik*, blood, and *che*, tree. The Pokonchí name of the rubber tree is reported as "cheel k'i'c."

Cecropia obtusa Trécul. *C. peltata* Flores, Agricultor 10[7]: 8. 1923, not L.

Koochle (Cuevas). Common.—A tree 6–18 m. high, with whitish bark, hollow stems, and few branches; leaves peltate, deeply lobed, densely white-tomentose beneath; flowers in dense thick terete spikes, these clustered at the end of a long peduncle.—The Cecropias are among the most conspicuous and characteristic trees of the Central American lowlands, in appearance quite unlike any other

plants of the region. The hollow branches nearly always are inhabited by savage ants. In Tabasco this tree is called "guarumo," a name of Carib origin used throughout Central America. Cuevas states that the tree has sudorific, tonic, and emmenagogue properties, and is employed as a remedy for fevers, and to ease parturition. The name "xobin" is reported for one of the Guatemalan species of *Cecropia.*

Chlorophora tinctoria (L.) Gaud. *Morus celtidifolia* Millsp. FMB. 1: 293. 1896, 1: 359. 1898, not HBK.

Sp. *Mora, Palo Moral.* Common.—*Fustic.* A tree 15 m. high or less, often armed with long spines; leaves elliptic-ovate, acuminate, glabrate, often deeply lobed; pistillate flowers in globose heads, the staminate in slender catkins.—Flowering in May; fruit ripe in June or July. Called "moral liso" in Tabasco. Sometimes planted as a shade tree because it remains green during the dry season. The strong tough wood is used for hubs of cart wheels and for many other articles. It is the fustic wood of commerce, which gives yellow, brown, and green dyes, and is employed particularly for making khaki dye. The fruit is said to be edible.

Dorstenia Contrajerva L. *D. Houstoni* L.; *"D. Contrajerva* var. *Houstoniana"* Millsp. FMB. 1: 293. 1896.

Xcambalhan, Cabalhau. Sp. *Contrayerba.* Common in forests.—An acaulescent perennial herb with long-petioled, angled or deeply lobed leaves; flowers borne on a flat green quadrangular receptacle.—The rootstocks are much used in domestic medicine, and the plant is considered an antidote for all poisons. It is employed as a stimulant tonic and diaphoretic in fevers, dysentery, diarrhea, and indigestion. In Central America the rootstocks are sometimes employed for flavoring tobacco.

The typical form of the species has deeply lobed leaves. In var. *Houstoni* the leaves are merely angulate, but this form is scarcely worthy of nomenclatorial recognition.

Ficus Carica L.

Sp. *Higo, Higuero.* Sometimes grown for its fruit. Native of the Old World.—*Fig.*

Ficus cotinifolia HBK. *F. longipes* Miq.; *F. rubiginosa* Millsp. FMB. 1: 14. 1895, not Desf.; *F. subrotundifolia* Greenm.

Copó. Sp. *Alamo.* Common.—One of the largest trees of the region; reported to flower in May and to ripen its fruit in June.

The leaves are said to furnish excellent fodder for horses and mules. The milky sap contains rubber, and is reported to be employed for adulterating chicle, and it is also combined with chicle sap to form a very adhesive bird-lime. It is stated that the sweetish fruits are eaten raw, dried like the cultivated fig, or preserved with sugar. The leaves of this fig, according to Landa, were scattered in the courts of the temples during certain ceremonies.

Maler reports "chimon" as a Maya name for one of the *Ficus* species of Chiapas.

The wild figs of the genus *Ficus* are among the most common tropical American trees, and in general the least useful. They are often epiphytic, at least in early stages of growth, germinating upon the trunk of some tree, especially of palms, and sending down long roots or branches which finally envelop, strangle, and kill the host plant. The sap is milky and contains rubber. The wood is soft, weak, and useless. From the bark some of the ancient Mexicans, probably also the Mayas, prepared a kind of paper for writing purposes. The fruits are usually small and insipid, and of little use for human food, although they are sought eagerly by parrots and other birds. The strangling figs are perhaps the principal plants responsible for the destruction of the old Maya buildings.

Ficus involuta (Liebm.) Miq. *F. Bonplandiana* Miq.

Progreso, cultivated as a shade tree; Izamal and Cozumel Island.—A large tree with leathery cuneate-oblovate leaves, rounded at the apex.

The report by Millspaugh (FMB. 1: 388. 1898) of *F. Bonplandiana*, based on *Schott 352* from Celestún, relates to a different species. The specimen is incomplete, and its identification uncertain. The tree is said to be known as "álamo" and "golondrino." The former name, applied in Yucatan to the wild figs, is given in Spain to species of *Populus*.

Ficus laevigata Vahl. *F. lentiginosa* Vahl; *F. tecolutensis* Standl. CNH. 20: 12. 1917, in part, not Miq.

Kancabtsonot, *Gaumer 23850, 23867;* without locality, *Gaumer 24059;* Buena Vista Xbac, *Gaumer* in 1899.—A large tree of dry forests.

Ficus lapathifolia (Liebm.) Miq. *F. Bonplandiana* Millsp. FMB. 1: 388. 1898, not Miq.

Sp. *Alamo, Golondrino.* Celestún, *Schott 352.*—A large tree; leaves oblong to oval, abruptly acute, pubescent beneath; receptacles stalked, globose.

Ficus mexicana Miq.

Saccabah. Aguada Colotyax, *Schott 783.*—A large tree with rough leaves; bark smooth and pale.

Ficus nitida Thunb. *F. laurifolia* Millsp. FMB. 1: 14. 1895, not Lam. *F. populnea* Millsp. & Loes. BJE. 36: Beibl. 80: 13. 1905, not Willd. *F. indica* Dondé, Apuntes 93. 1907, not L.

Sp. *Laurel, Laurel de la India, Alamo extranjero.* Planted commonly as a shade tree; native of Asia.—One of the handsomest of the fig trees, when well grown of great size; often assuming the banyan form, with many aerial roots, some of which enter the ground and form new trunks remote from the central one. Dondé states that this species was imported into Yucatan about 1860 from Cuba. The leaves are sometimes eaten by cattle.

Ficus padifolia HBK.

Champotón, Campeche, *Collins 42;* without locality, *Gaumer 24346, 24427.*—A large tree with small leaves.—Known in Tabasco as "amatillo" or "capulín."

Ficus radula Willd.

Collected at Chichen Itzá, Chichankanab, and Puerto Morelos.—A large tree with slightly roughened leaves.

Ficus religiosa L.

Sp. *Alamo cubano.* Cultivated at Mérida, and probably elsewhere, as a shade tree. Native of the East Indies.—Easily recognized by the ovate-deltoid leaves with long linear acumination.

Ficus yucatanensis Standl. CNH. 20: 33. 1917.

Endemic. Type from Chichen Itzá, *Goldman 554;* Cozumel Island, *Goldman 657.*

The identity of the plant listed from Chichen Itzá by Millspaugh (FMB. 1: 14. 1895) as *"Ficus grandifolia?"* is doubtful. The Maya name is given as "akum." The same tree, probably, is mentioned elsewhere (Agricultor 2: 101) as a wood producing a resin which resembles that of "hule" (*Castilla*).

Gaumer lists in his Sinonimía three species of *Morus: M. alba* L., *M. nigra* L., and *M. rubra* L. It may be that some of these mul-

berries ("moras") are cultivated in the region for their fruit, or as shade trees.

URTICACEAE. Nettle Family

Pilea herniarioides (Swartz) Lindl.

Frequent in moist soil.—A small succulent annual with much-branched brittle stems; leaves slender-petioled, rounded, entire; flowers minute, green.—This is easily confused with *P. microphylla*, and probably bears the same vernacular names.

Pilea microphylla (L.) Liebm. *P. muscosa* Lindl. *Adicea microphylla* Kuntze.

Yomha. Sp. *Frescura, Hierba de la viruela*. A common weed, especially in moist places.—A small much-branched fleshy annual; leaves petioled, elliptic or obovate, glabrous.—The name "hierba de la viruela" would indicate that the plant is employed as a remedy for smallpox, but I have found no reference to its use.

Rousselia humilis (Swartz) Urban. *Parietaria pennsylvanica* var. *floridana* Millsp. FMB. 1: 293. 1896, not Wedd.

Frequent in moist places, especially on stone walls.—A small slender inconspicuous annual, sparsely pubescent; leaves alternate, long-petioled, broadly ovate, acute or obtuse, entire; flowers minute, green, axillary.—Unknown elsewhere in Mexico or Central America.

Urera baccifera (L.) Gaud. *Urtica urens* Cuevas, Pl. Med. 59. 1913, in part, not L.

Laal, Laal tzimin, La (Motul Dict.). Sp. *Ortiga, Ortiga de caballo*. Reported as common; Izamal, *Gaumer 936*.—A shrub or small tree 2–5 m. high, armed with broad-based stinging prickles and with coarse stinging hairs; fruit white, juicy.—The plant is said to be used for hedges in Yucatan, as it is in many parts of Central America. The hairs on slightest contact with the flesh cause excruciating pain, which may last for as much as 24 hours.

Urera caracasana (Jacq.) Griseb. *Urera microcarpa* Millsp. FMB. 1: 14. 1895, 1: 359. 1898, not Wedd.

Laal, Lal, Laltsimin (Schott). Sp. *Ortiga, Ortiga de caballo*. Frequent.—A shrub or small tree 2–6 m. high, furnished with stinging hairs; leaves large, broadly ovate, acute or acuminate, crenate, pubescent; flowers small, green, in dichotomous cymes; fruit small, red and fleshy at maturity.

PROTEACEAE. Protea Family

Grevillea robusta Cunn.

Reported in Gaumer's Sinonimía, and doubtless grown as a shade tree in various parts of the Peninsula. It is one of the common ornamental trees of Mexico and Central America. Native of Australia. —*Silk-oak.*

LORANTHACEAE. Mistletoe Family

Phoradendron Gaumeri Trel. Gen. Phorad. 114. *pl. 167.* 1916. *P. flavescens* Millsp. FMB. 1: 294. 1896, in part, not Nutt.

Endemic in Yucatan and Campeche; type from Izamal, *Gaumer 561* in part; Izamal, *Gaumer 23829;* Suitún, *Gaumer 23824, 23825, 23828.*—A small parasitic shrub, glabrous; leaves oblong to oval-oblong, rounded at apex, thick; flowers minute, greenish, in short spikes; fruit a translucent berry.—Reported as parasitic on *Pithecolobium tortum, P. Unguis-cati, Cassia emarginata,* etc.

Phoradendron Millspaughii Trel. Bull. Torrey Club 54: 475. 1927.

Endemic; type from Suitún, *Gaumer 23827.*—Leaves oblanceolate-oblong, 4–6 cm. long, obtuse, narrowed at the base, glabrous.

Phoradendron vernicosum Greenm. FMB. 2: 250. 1907. *P. flavescens* Millsp. FMB. 1: 294. 1896, in part, not Nutt.

Xkeu, Yaax-xkeu. Sp. *Caballero.* Endemic in Yucatan. Type from Izamal, *Greenman 440;* Tsilám, *Gaumer 876;* Chichankanab, *Gaumer 1850, 2011, 23657;* Yaxactun, *Gaumer 23211;* Tecoh, *Gaumer 23775;* San Pedro, *Gaumer 23774.*—A glabrous parasite; leaves opposite, petioled, lance-oblong to elliptic, obtuse or rounded at the apex, thick; flower spikes axillary, short and dense.—Reported as growing in large masses on *Bumelia buxifolia.* Gaumer states that the plant is employed as an aid to parturition, also in the treatment of nervous diseases such as epilepsy, dementia, and paralysis.

The name "xkeu" is said to be applied generally to plants of this family. Other names reported for "*Phoradendron flavescens*" are "xmuyche," "yax-zcin," and "xac-xciu."

Phoradendron yucatanum Trel. Gen. Phorad. 118. *pl. 173.* 1916. *P. flavescens* Millsp. FMB. 1: 294. 1896, in part, not Nutt. *P. mucronatum* Greenm. FMB. 2: 250. 1907, not Krug & Urb.

Endemic in Yucatan; type from Izamal, *Gaumer 561* in part; Pixila, *Gaumer 23214;* without locality, *Gaumer 24384.*—Stems angled,

puberulent; leaves nearly sessile, rounded-obovate or orbicular; flower spikes short and dense.

Psittacanthus americanus (Jacq.) Mart. *Loranthus americanus* Jacq.; *P. calyculatus* Don.

Xkeu, Chacxeu. Sp. *Muérdago.* Apparently common in Yucatan. —A large glabrous parasite, growing upon *Spondias* and other trees; leaves oblong-lanceolate, narrowed to the obtuse apex; fruit a large black berry; flowers red and handsome, 3–5 cm. long.—The leaves are employed as emollient poultices, and a decoction of them is administered as a diuretic. Gaumer reports that the plant has resolutive, vulnerary, emmenagogue, and abortivant properties, and is employed in the treatment of chorea, asthma, hysteria, and all spasmodic affections. It is used also as a depurative in chronic syphilitic affections.

Psittacanthus calyculatus usually is regarded as a distinct species, but it is difficult if not impossible to separate it definitely from *P. americanus.* At any rate, it seems preferable to refer the Yucatan material to *P. americanus.*

Struthanthus cassythoides Millsp. ex Standl. FMB. 8:7. 1930.

Type from Progreso, *Gaumer 1174;* Progreso, *Gaumer 2220, 2458;* without locality, *Gaumer 23997.*—A glabrous epiphytic shrub; leaves subsessile, obovate or oblong-obovate, 2.5–3.5 cm. long, broadly rounded at the apex, cuneate at the base; cymes solitary or fasciculate at the nodes, 3–10-flowered; petals 4, linear, 3 mm. long.

BALANOPHORACEAE. Balanophora Family

Helosis mexicana Liebm.

Tikal, Guatemala, *Cook & Martin 167.*—A root parasite, resembling in general appearance some mushrooms, the stout fleshy naked stalk bearing an ovoid or ellipsoid, very dense head of minute flowers.

ARISTOLOCHIACEAE. Birthwort Family

Aristolochia grandiflora Sw.

Uahko, Uahkoh. Sp. *Flor de pato, Hierba del indio, Guaco.* Cultivated at Izamal, the plants said to have been brought from Ruatán Island, Honduras.—A large herbaceous vine, glabrous or nearly so; leaves long-petiolate, broadly cordate, acute or acuminate.—This vine is one of the most remarkable of tropical American plants

because of its giant brown-purple flowers, perhaps the largest produced by any American plant. In form they suggest the body and head of a duck, and when well developed they are of about the same size. A linear appendage which hangs from the calyx is sometimes a meter long. The plant is grown frequently in northern greenhouses under the names "swan flower," "duck flower," and "pelican flower." The roots are employed in some regions as a remedy for snake bites and scorpion stings. Cuevas, writing probably of this species, states that a tincture of guaco is used as a lotion for rheumatism, malaria, and syphilitic affections, and that the infusion is taken internally for colera. Maler states that in Petén and Chiapas the plant is known as "bonete del fraile" and "bonete del diablo."

The name "uahko" is evidently an attempt to write in Maya the Spanish name "guaco." That term is applied generally in tropical America to numerous species representing several unrelated families, all of them being plants which are supposed to be remedies for snake bites.

Aristolochia maxima L.

Sp. *Guaco del sur.* Frequent.—A large woody vine; leaves oblong, rounded or obtuse at the base and apex; flowers dark brown-purple, racemose; capsules about 10 cm. long, pendent.—Known in Tabasco as "canastilla" and "farolito," both names relating to the large capsules.

Aristolochia odoratissima L. *A. elegans* Millsp. & Loes. BJE. 36: Beibl. 80: 13. 1905.

Reported from Mérida; without definite locality, *Gaumer 24457, 24364.*—A large herbaceous vine; leaves broadly deltoid-cordate, acute to rounded at the apex, glabrous; flowers about 10 cm. long, dull green spotted with purple-brown.—Known in Tabasco as "cocobá." The plant listed from Yucatan as "kokobak" is probably this vine. I have not seen *Seler 3847* from Mérida, on which the report of *A. elegans* Mast. is based, but that species is probably not distinct from *A. odoratissima,* and the report doubtless relates to the latter species.

Aristolochia pentandra Jacq. *A. brevipes* Millsp. FMB. 1: 294. 1896, 1: 359. 1898, not Benth.

Chanuahko, Mehenuahkoh (Gaumer). Sp. *Guaco.* Izamal, *Gaumer 441;* Mérida, *Schott 426a, 426, 426b;* Tsitas, *Schott 839.*—A small

slender pubescent herbaceous vine; leaves hastately 3-lobed, the lobes obtuse to acuminate.—Used locally, according to Dondé, as a tonic and febrifuge. The plant is employed also as an emmenagogue and in the treatment of gout and rheumatism.

OPILIACEAE. Opilia Family

Agonandra obtusifolia Standl.

Kancabtsonot, *Gaumer 23870, 23609;* Tsilám, *Gaumer 645;* Izamal, *Gaumer* in 1907.—A glabrous shrub or small tree; leaves alternate, lanceolate to broadly elliptic, obtuse, entire; flowers small, green, in short racemes on old wood; fruit a small drupe.

OLACACEAE. Olax Family

Schoepfia Schreberi Gmel.

Frequent.—A glabrous shrub or small tree with crooked whitish branches; leaves alternate, short-petioled, ovate or elliptic, acuminate, entire; flowers small, in short few-flowered axillary cymes.

Ximenia americana L.

Xkukche. Occasional in thickets.—A spiny shrub or small tree with a yellow plumlike edible fruit; leaves alternate, oblong to ovate, obtuse, entire, glabrous or nearly so; flowers small, whitish, in dense axillary racemes, the perianth densely hairy within.

POLYGONACEAE. Buckwheat Family

Antigonon leptopus Hook. & Arn. *A. cordatum* Mart. & Gal.

Chaclomacal (Gaumer). Sp. *Flor de San Diego.* Frequent.—A large vine, herbaceous or suffrutescent, the racemes furnished with tendrils, the bright pink flowers very showy; leaves broadly deltoid-hastate, obtuse or acute, entire or undulate, glabrous.—Called "Confederate vine" in Florida. Cultivated generally for ornament in tropical America. Dondé states that the roots bear tubercles which are used medicinally. The plant is reported as a local remedy for enlarged spleen.

Coccoloba cardiophylla Standl. FMB. 8: 8. 1930.

Type, *Gaumer 24013,* without definite locality; Kancabtsonot, *Gaumer 23865, 23905;* also in British Honduras.—A glabrous tree; leaves ovate-rounded, 5–7 cm. long, obtuse or acutish at the apex, at the base rounded and emarginate or deeply cordate.

Coccoloba cozumelensis Hemsl. Biol. Centr. Amer. Bot. 4: 108. 1887. *C. yucatana* Lindau, BJE. 13: 190. 1890.

Endemic. Type collected on Cozumel Island by Gaumer in 1885. The type of *C. yucatana* is *Gaumer 18* from Yucatan.—A tree 9–15 m. high, glabrous throughout; leaves thin, ovate-oblong, 2.5–10 cm. long, obtuse or subacute; flowers pale green, the slender racemes sometimes 15 cm. long.

Coccoloba Schiedeana Lindau. *C. coronata* Millsp. FMB. 1: 294. 1896, not Jacq.

Bobche. Kancabtsonot, *Gaumer 23894;* without locality, *Gaumer 23976;* Izamal, *Gaumer 819.*—A shrub or small tree; leaves thick, oval, obtuse to cordate at the base, glabrous; flowers white, the rachis of the raceme pubescent.

Coccoloba uvifera (L.) Jacq.

Niiche. Sp. *Uva del mar, Uva.* Common along seashores.—*Seagrape.* A shrub or small tree, the handsome thick rounded leaves often red when young.—The wood, when of sufficient dimensions, is useful for cabinetwork. The calyx is accrescent and at maturity large, fleshy, juicy, and edible. The plant is astringent, and tonic properties are ascribed to it. It is employed locally as a remedy for chronic diarrhea and dysentery, and for venereal diseases.

Gymnopodium antigonoides (Robinson) Blake, Bull. Torrey Club 48: 84. 1921. *Millspaughia antigonoides* Robinson in Millsp. & Loes. BJE. 36: Beibl. 80: 14. 1905.

Tzitzilche, Zactsitsilche. Sp. *Cruceto* (B. H.). Type from Progreso, *Millspaugh 1657.* Common and widely distributed in dry brushlands and on rocky plains; also in Chiapas.—Usually a shrub about 5 m. high, sometimes a tree of 12 m.; leaves alternate, nearly sessile, obovate to oval-elliptic, obtuse or rounded at the base and apex, densely pubescent beneath; flowers in panicled racemes; sepals cordate at the base.—Gaumer remarks of this plant: "Like the flowers of *Podopterus mexicanus,* those of this species yield a large amount of clear transparent honey of fine flavor and exquisite taste. The wood makes a charcoal of the highest grade, noted for its intense heat and lasting qualities."

Gymnopodium ovatifolium (Robinson) Blake, Bull. Torrey Club 48: 84. 1921. *Millspaughia ovatifolia* Robinson in Millsp. & Loes. BJE. 36: Beibl. 80: 14. 1905.

Known only from the type, collected at Progreso, *Millspaugh 1672*.—Leaves rhombic-ovate to elliptic-oblong, entire, acutish or obtuse, pubescent beneath; sepals rounded at base.

Neomillspaughia emarginata (Gross) Blake, Bull. Torrey Club 48: 85. 1921. *Podopterus emarginatus* Gross, Repert. Sp. Nov. 12: 218. 1913. *Podopterus mexicanus* Millsp. FMB. 1: 294. 1897, 1: 359. 1898, not Humb. & Bonpl.

Zacitsa (Gaumer), *Tsaitsa* (Schott); reported also as "xtzacitza." Frequent; endemic; type from Kabah, *Seler 5600;* Izamal, *Gaumer 750;* Suitún, *Gaumer 23407;* without locality, *Gaumer 24217, 24385, 24017;* Mérida, *Schott 487*. Endemic.—A tree sometimes 15 m. high, common in low forests and brushlands; flowering in June and July.

Podopterus mexicanus Humb. & Bonpl.

Putsmucuy. Common.—A deciduous shrub or small tree sometimes 6 m. high, with spinose branchlets.—The Maya name signifies "dove's needle," in allusion to the sharp spine prolonged beyond the apex of the flower clusters. The flowers yield a large amount of clear transparent honey of excellent flavor.

Polygonum sp. Sterile specimens of a *Polygonum*, with foliage similar to that of *P. lapathifolium* L., were collected by Gaumer at Chichankanab, *No. 1503*. The Maya name is given as "xkaxek."

AMARANTHACEAE. Amaranth Family

Achyranthes aspera L.

Zacpayche. Sp. *Zorrillo blanco*. A common weed.—An erect or ascending, pubescent herb, usually less than 1 m. high; leaves mostly elliptic, acuminate; flowers green, reflexed, in long slender spikes.—The calyces are armed with hooked spines which penetrate the skin readily and are difficult to remove. The Maya name has been reported as "sacpiche" and "xacpiche."

Alternanthera Bettzickiana (Regel) Standl., comb. nov. *Telanthera Bettzickiana* Regel.

Izamal, doubtless in cultivation, *Gaumer* in 1888. Native, perhaps, of Brazil, but often grown for ornament.—A low erect annual, glabrous or nearly so; leaves long-petioled, mostly rhombic-ovate, often red or purple; flowers white, in small sessile axillary heads.

Alternanthera halimifolia (Lam.) Standl., comb. nov. *Achyranthes halimifolia* Lam.; *Alternanthera asterotricha* Uline, FMB. 1: 419. *pl. 23*. 1899.

Frequent on seashores.—A coarse procumbent herb, stellate-pubescent; leaves oblong to oval, rounded at the apex; flowers in dense sessile axillary heads.—The type of *Alternanthera asterotricha* was collected at Tsilám, *Gaumer 1303*.

Alternanthera obovata (Mart. & Gal.) Millsp.

Izamal, *Gaumer 905*, in part.—A perennial herb, prostrate or decumbent; leaves obovate to oblong, glabrate, rounded at the apex; flowers white, in large globose sessile heads.—The only specimen seen is associated with specimens of *Gomphrena dispersa*. The species has not been collected in Yucatan at any other time, and I suspect that the *Alternanthera* specimen may have become associated by accident with the *Gomphrena*, and perhaps was not collected in Yucatan.

Alternanthera polygonoides (L.) R. Br.

A frequent weed.—A prostrate herb, rooting at the nodes, villous or glabrate; leaves elliptic or obovate, obtuse; flowers white, in sessile axillary heads.

Alternanthera ramosissima (Mart.) Chod. *A. brasiliana* Uline & Bray, not *Gomphrena brasiliana* L.; *A. straminea* Millsp. FMB. 1: 16. 1895, 1: 360. 1898, not *Mogiphanes straminea* Mart. *Gomphrena capituliflora* Millsp. FMB. 1: 16. 1895.

Zacmuul. Sp. *Amor seco del monte.* Common.—A large herb, often subscandent, glabrate; leaves chiefly lanceolate, acuminate; flowers in globose or oblong, long-stalked heads.—A decoction of the plant is reported to be used as a remedy for coughs.

Alternanthera repens (L.) Kuntze.

Cabalxtez (Gaumer). A common weed.—A prostrate annual, copiously villous or glabrate; leaves mostly elliptic, petiolate, obtuse; flowers in dense villous sessile axillary heads.—This plant, as I have seen it in tropical America, is almost wholly confined to streets, where it grows between the paving stones.

Amaranthus annectens Blake, Journ. Bot. 53: 103. 1915.

Xtez. Endemic. Type from Celestún, *Schott 360;* Tsilám, *Gaumer 1243;* Progreso, *Gaumer 23149*.—A seashore plant, apparently procumbent, dioecious; leaves oblong-spatulate, obtuse or rounded at the apex; flowers in small clusters, forming long branched spikes.

Amaranthus cruentus L. *A. hybridus* Millsp. FMB. 1: 360, in part. 1898, not L.

Mérida, *Schott 817*.—A tall, nearly glabrous annual; leaves lanceolate or ovate; flowers often purple-red, forming long slender panicled spikes.

Amaranthus dubius Mart. *A. hybridus* Millsp. FMB. 1: 15. 1895, 1: 360, in part. 1898, not L.

Xtez, Chactez (Gaumer). A common weed.—An erect or ascending annual, glabrous or nearly so; leaves chiefly ovate, obtuse; flowers in dense panicled spikes.—Some of the specimens have been distributed as *A. tortuosus* Hornem.

Amaranthus hybridus L.

Xtez. Sp. *Bledo, Quelite.* A common weed.—*Pigweed.* A tall coarse annual, nearly glabrous; leaves chiefly ovate; flowers in dense clusters, these forming large thick panicled spikes.—It may be this plant which is said to be known as "tezmucuy."

Amaranthus polygonoides L.

Zactez, Zacxtez, Sacxtez, Xacxtez. Frequent.—A slender annual, nearly glabrous, erect or spreading, usually 30 cm. high or less; leaves chiefly ovate or rhombic-ovate, obtuse, often emarginate; flowers in small sessile axillary clusters.

Amaranthus spinosus L.

Xtez, Kixxtez. Sp. *Bledo.* A common weed.—*Spiny pigweed.* A somewhat succulent annual, armed with sharp axillary spines; leaves chiefly ovate, long-petioled; flowers forming elongate spikes.—The decoction of the plant is used as a remedy for rheumatic pains and inflammation of the bladder, and as an emmenagogue. The Quiché name for this or some other *Amaranthus* is reported from Guatemala as "tzetz" and "labtzetz." This species is a common weed in many parts of the United States.

Celosia argentea L. *C. cristata* L.

Sp. *Abanico, Cresta de gallo.*—The cristate form of the species, the garden cockscomb, is grown for ornament.

Celosia nitida Vahl. *C. paniculata* Millsp. FMB. 1: 15. 1895, 1: 295. 1896; Millsp. & Loes. BJE. 36: Beibl. 80: 15. 1905, not L.

Zabacpox. Frequent.—Plants erect, glabrous, herbaceous or suffrutescent; leaves oblong-lanceolate; flowers borne in dense few-flowered spikes.

Celosia virgata Jacq.

Hatanal, Xhalalnal (Valdez), *Xhatalnal.* Apparently common.—An erect branched glabrous herb about a meter high; leaves ovate

to lanceolate, acuminate, long-decurrent upon the petiole; flowers green, in dense spikes, these forming large panicles.—Valdez states that the plant has astringent properties, and is employed as a remedy for diarrhea.

Chamissoa altissima (Jacq.) HBK. *Kokera paniculata* Kuntze.

Common in thickets.—A large, often scandent, weedy plant, herbaceous or suffrutescent, dioecious; leaves large, lanceolate or ovate, acuminate, glabrous; flowers green, in small dense clusters arranged in panicled spikes.—A common weed in many parts of tropical America.

Gomphrena dispersa Standl. *G. decumbens* Millsp. FMB. 1: 295. 1896, 1: 360. 1898, not Jacq. *Alternanthera obovata* Millsp. FMB. 1: 360, in part. 1898, not *Bucholzia obovata* Mart. & Gal.

Chacmol. Sp. *Amor seco, Siempreviva, Inmortal.* A common weed.—A low annual or perennial, appressed-pilose, erect or decumbent; leaves oblong-oblanceolate, obtuse; flowers white, in dense globose bracted heads.—The same medicinal properties are attributed to this as to *G. globosa.* This species is perhaps only a form of *G. decumbens* Jacq.

Gomphrena globosa L.

Chacmol, Tmuul. Sp. *Amor seco.* Cultivated for ornament and perhaps escaped from cultivation.—*Bachelor's-button, immortelle.* The plant is of American origin, but its native habitat is unknown, although no doubt it has been grown in Mexico for many centuries. Cuevas reports that the plant (it is possible that he refers rather to *G. dispersa*) has sudorific and emollient properties, an infusion of the leaves and flowers being administered for fevers, and a decoction for dysentery. The dried flowers often are used as decorations in houses.

Gomphrena nana (Stuchl.) Standl.

Tekax, *Gaumer 1428;* without locality *Gaumer 24452;* Mérida, *Schott 30;* Izamal, *Gaumer* in 1888; Chichankanab, *Gaumer 23726,* in part.—A stout erect annual, appressed-pilose; leaves chiefly oblong; heads large, white, sessile, clustered, subtended by several large leaflike bracts.

Iresine Herbstii Hook.

Cultivated for ornament, *Gaumer 1078.*—Probably only a form of *I. paniculata* developed in cultivation; leaves mostly retuse at the apex, colored with red, yellow, or white.

Iresine paniculata (L.) Kuntze. *I. celosioides* L.; *I. lanceolata* Moq.; *I. luzuliflora* Millsp. FMB. 1: 16. 1895, not Griseb.

Zactezxiu (Gaumer). A common weed.—A slender herb, sometimes scandent, usually 1 m. high or less, dioecious, pubescent or glabrate; leaves lanceolate to broadly ovate, acuminate; flowers minute, white, spicate, the spikes forming large lax panicles.—This is one of the most abundant weedy plants of tropical America, and is widely distributed.

Philoxerus vermicularis (L.) R. Br. *Gomphrena vermicularis* L.; *Lithophila vermiculata* Uline.

Xukuk (Gaumer). Common on seacoasts and lake shores.—A low much-branched perennial herb, ascending or prostrate, fleshy; leaves linear; flowers white, in dense, globose or oblong, sessile or stalked heads.

CHENOPODIACEAE. Goosefoot Family

Atriplex pentandra (Jacq.) Standl. *Atriplex cristata* H. & B.

Putbacxtez (Gaumer). Common on seashores.—A depressed much-branched pale herb.

Beta vulgaris L.

Sp. *Remolacha.*—The beet, native of the Mediterranean region, is cultivated here, as it is in many places in the tropics.

Chenopodium ambrosioides L.

Lucumxiu (Gaumer). Sp. *Apazote.* An occasional weed.—*Wormseed.* A very ill-scented, glandular, perennial herb.—The plant is abundant in many parts of tropical America. In Mexico, as elsewhere, it is administered to expel intestinal parasites, for which it is very efficient. Locally it is employed also as a remedy for nervous diseases, especially chorea, and for catarrh and asthma. The name "apazote" is of Nahuatl origin. Among the names reported from Guatemala are "sicah," "siquih," and "achih."

Chenopodium Berlandieri Moq. subsp. **yucatanum** Aellen, Repert. Sp. Nov. 26: 59. 1929. *C. album* Millsp. FMB. 1: 359. 1898, not L.

Sp. *Quelite.* Type collected in Yucatan, without definite locality, *Gaumer 1065;* Chichankanab, *Gaumer 2159, 2437.* Reported also from New Mexico.—A tall, nearly glabrous, much-branched annual; leaves alternate, petioled, ovate-rhombic, coarsely dentate, some-

what fleshy; flowers small, green, panicled.—This is probably the plant cited by Aznar as *"Quenopodium vulgaris."* The word "quelite," of Nahuatl origin, is applied in Mexico to almost any plant used as a pot herb, being comparable to our English word "greens."

Salicornia Bigelovii Torr.

Tsilám, *Gaumer 633;* Celestún, *Schott 297.*—A fleshy annual seashore plant, unknown in Mexico except from Yucatan. It occurs in Cuba, Porto Rico, and the Bahamas, and on both coasts of the United States. The Kekchí name is reported as "kaxlan ixkih."

Salicornia perennis Mill.

Progreso, *Seler 4934* (distributed as *S. fruticosa* L.).—A perennial fleshy seashore plant, unknown elsewhere in Mexico.

Spinacia oleracea L.

Sp. *Espinaca.*—Spinach is listed in Gaumer's Sinonimía, but presumably it is not grown commonly in Yucatan. It is rarely cultivated in Mexico and Central America.

Suaeda mexicana Standl., comb. nov. *Dondia mexicana* Standl.; *D. linearis* Millsp. FMB. 2: 35. 1900, not Heller.

Common on sea and lake shores.—A fleshy annual with linear leaves, growing along seashores or about lakes.—The name "tsaycan" is reported in the Motul Dictionary for a "soap plant of the coast whose ashes are used for making soap." I suspect this plant may be *Suaeda,* although the Maya name is said to refer to *Sesuvium Portulacastrum,* which perhaps may be used for the same purpose.

NYCTAGINACEAE. Four-o'clock Family

Boerhaavia caribaea Jacq. *B. hirsuta* Willd.; *B. viscosa* Lag. & Rodr.; *B. repens* Millsp. FMB. 2: 40. 1900, not L.

Uxiuam (Gaumer), *Chacilxiu* (Gaumer). Sp. *Mata de pavo* (Gaumer). A common weed.—A procumbent herb with small flowers and viscid pubescence; leaves opposite, petioled, oval to broadly ovate, obtuse, undulate; flowers red, in small heads.—The dry viscid fruits adhere to clothing and to the feathers and feet of birds.

Boerhaavia erecta L.

Xaacil, Zacxiu, Zacxiuthul, Xacilsacxiu, Xacilxacxiu. Sp. *Hierba blanca.* A common weed, generally distributed in tropical America. —An erect annual with minute, white or pinkish, corymbose-

paniculate flowers; leaves long-petiolate, oblong to broadly rhombic-ovate, sinuate.—The plant is reputed to have antispasmodic properties, and is employed locally in the treatment of epilepsy, chorea, and other nervous diseases.

Bougainvillea glabra Choisy.

Sp. *Carolina* (Gaumer). A native of Brazil, grown for ornament nearly everywhere in tropical America.—*Bougainvillea.* Valdez reports that the fresh leaves are used to keep wounds clean.

Commicarpus scandens (L.) Standl. *Boerhaavia scandens* L.; *B. erecta* Millsp. FMB. 1: 295. 1896, in part, not L.

Frequent.—Plants large, slender, glabrous, herbaceous or suffrutescent, clambering over shrubs and large herbs; leaves opposite, petioled, deltoid or ovate-deltoid, usually obtuse, entire; flowers small, greenish yellow, in umbels; fruit dry, with numerous viscid glands.

Mirabilis Jalapa L.

Tutsuixiu (Gaumer). Sp. *Maravilla.* The four-o'clock, grown here, as elsewhere throughout the tropics, for ornament.—A nearly glabrous, perennial herb, with broadly ovate or deltoid, usually acute or acuminate, petioled leaves.—The handsome sweet-scented flowers open in the evening and close in the forenoon. They are purple-red, white, or yellow, and often exhibit striking variegations. The native habitat of this plant is not known, but doubtless it has been in cultivation in Mexico and Central America for many centuries. The root is employed in domestic medicine as a drastic purgative.

Neea choriophylla Standl. CNH. 13: 384. 1911.

Endemic; type from Izamal, *Gaumer 761;* Kancabtsonot, *Gaumer 23875;* without locality, *Gaumer 23964, 24049.*—A shrub 2 m. high; leaves opposite, slender-petioled, oblong-elliptic, acuminate, glabrous; flowers small, pink, in slender-stalked cymes; fruit oval, with fleshy pericarp, 1-seeded.

Neea sphaerantha Standl. CNH. 13: 384. 1911.

Endemic; type from Izamal, *Gaumer 697.*—A slender shrub 3 m. high with green flowers, produced in May, in long-stalked cymes; leaves oblong to elliptic, obtuse, glabrous.

Okenia hypogaea Schlecht. & Cham.

Progreso, *Gaumer 23152;* without locality, *Gaumer 24328.* A plant of coastal sand dunes.—A prostrate viscid-villous annual with

long-petioled, oval or rounded leaves; flowers purple-red.—The pedicels lengthen after anthesis, and the fruits are developed under ground, like those of the peanut (*Arachis hypogaea*).

Oxybaphus violaceus (L.) Choisy. *Allionia violacea* L.; "*Mirabilis longifolia* L.;" Millsp. FMB. 1: 16. 1895.

Xpakumpak. Sp. *Hierba del golpe* (Gaumer). Common.—An inconspicuous perennial herb with red-purple flowers; leaves long-petioled, ovate or deltoid, acute or acuminate, often cordate at the base, nearly glabrous.

Pisonia aculeata L.

Beeb. Sp. *Uña de gato.* Common in thickets.—A shrub or small tree, armed with stout recurved spines, the branches long and usually pendent or subscandent; leaves ovate to broadly elliptic, acute or obtuse, pubescent or glabrate.—The fruits of this plant are distinctive, being club-shaped, and furnished on the 5 angles with stalked glands. These exude a very sticky substance which, even in herbarium specimens, conserves its viscidity for 50 years and more. The fruits are reported to entangle small birds, which are unable to extricate themselves. A decoction of the leaves taken internally or applied externally is considered in Yucatan an excellent remedy for articular pains, especially those of syphilitic origin.

The Motul Dictionary gives the definition of "beeb" as "matas espinosas de que huyen los murciélagos," a phrase whose significance is not altogether clear.

Torrubia linearibracteata (Heimerl) Standl. CNH. 18: 100. 1916. *Pisonia linearibracteata* Heimerl, Repert. Sp. Nov. 12: 221. 1913.

Endemic; type from Chichen Itzá, *Seler 5575;* without locality, *Gaumer 23999, 24343;* Suitún, *Gaumer 23834;* Chichankanab, *Gaumer 23720.*—A large shrub or small tree; leaves slender-petioled, oblong to oblong-elliptic, acute or obtuse, glabrous, blackening when dried; flowers small, dioecious, in long-stalked puberulent cymes; fruit oval, fleshy, 1-seeded.

BATIDACEAE. Batis Family

Batis maritima L.

Common on seashores, growing about mangrove swamps.—A low, perennial, herbaceous or suffrutescent, glabrous plant, 1 m. high or less; leaves short, linear, fleshy; flowers minute, green, in

short sessile conelike axillary spikes.—*Gaumer 611*, which belongs here, was distributed as "*Atriplex* sp." The plant is said to be employed, both externally and internally, in the treatment of cutaneous diseases.

PHYTOLACCACEAE. Pokeberry Family

Agdestis clematidea Moc. & Sessé.

Izamal, *Gaumer 871*.—A large herbaceous vine, climbing over trees to a height of 12 m.; flowers white; root large and turnip-shaped.

Petiveria alliacea L.

Payche. Sp. *Zorrillo, Hierba de las gallinitas*. A common weed.—Plants erect, herbaceous or suffrutescent; leaves alternate, short-petioled, oblanceolate-oblong, acute or obtuse, nearly glabrous; flowers small, whitish, in long slender spikes.—The plant, when crushed, has a strong odor of garlic, which is said to be communicated to the milk of cows that browse upon it. The Maya name signifies "skunk plant," and the term "zorrillo" has the same meaning. The fruits are armed with slender spines which penetrate the skin readily if one brushes carelessly against the plant, and they are difficult of removal. The plant is said to be used commonly by the Mayas in domestic medicine, the crushed leaves being applied as poultices to relieve rheumatism, and to bring boils to a head. A decoction of the plant is said to be used in fomentations to promote motion in paralyzed limbs. It is reported that the Mayas crush the seeds, place them upon a leaf of the plant, and apply them as a poultice to reveal bewitchery in the sick. Gaumer states that the extract of the plant is useful as an antispasmodic in hysteria and other nervous affections, and as a diaphoretic in fevers.

Phytolacca icosandra L. *P. mexicana* Gaertn.; *P. octandra* Millsp. FMB. 1: 295. 1896, not L. *P. nova-hispana* Millsp. FMB. 2: 41. 1900. *P. novohispanica* Millsp. ex H. Walt. in Engl. Pflanzenreich IV. 83: 60. 1909, as syn.

Telcox, Telcocox. Apparently common.—*Pokeweed*. A large succulent herb with thick root and juicy black berries; leaves petioled, elliptic, acute, glabrous; flowers small, pinkish, in long racemes.—Closely related to the common pokeweed (*Phytolacca americana*) of the United States. The plant is used locally as an alterant in chronic and mercurial rheumatism and in syphilis, especially for the reduction of swollen glands.

Rivina humilis L. *R. humilis* var. *glabra* L.; *R. laevis* L.; *R. humilis* var. *laevis* Millsp.

Kuxubcan (Gaumer). Sp. *Coral.* A common weed.—Plants herbaceous or suffrutescent, erect, branched, the flowers racemose, the fruit a small, bright red, one-seeded berry; leaves slender-petioled, mostly ovate and acute, glabrous or nearly so.

BASELLACEAE. Basella Family

Boussingaultia leptostachys Moq. *Dioscorea calyculata* Donn. Smith.

Xayillol (Gaumer). Chichankanab, *Gaumer 2063;* without locality, *Gaumer 931, 24231.*—A large fleshy glabrous herbaceous vine; leaves alternate, petiolate, chiefly ovate, acute or acuminate; flowers very small, whitish, in long slender naked racemes.

AIZOACEAE. Carpetweed Family

Sesuvium Portulacastrum L.

Tsaycan. Sp. *Verdolaga de la playa.* Frequent on seashores.—A trailing, very fleshy plant with opposite linear leaves and small axillary flowers.

PORTULACACEAE. Purslane Family

Portulaca halimoides L.

Tsayoch (Gaumer), *Tsay-och-can.* Izamal, *Gaumer 603, 1001.*—A small hairy annual with large fleshy terete leaves and yellow flowers.

Portulaca oleracea L.

Xucul. Sp. *Verdolaga.* A frequent weed.—*Pusley.* A fleshy glabrous annual with cuneate-obovate leaves and small yellow flowers.—Cuevas states that the plant is used in local medicine as an emollient and purgative. In many parts of Mexico and Central America the plant is cooked and eaten as a vegetable. The Quiché name of Guatemala is reported as "paxlac."

The name "verdolaga" is given to the plant everywhere in Central America and Mexico. In the Motul Dictionary the word "cabalchun" is translated as "verdolagas," and Pérez gives the same equivalent for "ixtsacalbac," but it may be that neither of these names relates to plants of this family.

Portulaca pilosa L.

Tsayoch, Tsotsiltsaioch (Gaumer). Frequent.—A low hairy annual with fleshy terete leaves and small purple flowers.

Talinum paniculatum (Jacq.) Gaertn.

Saioch (Gaumer). Frequent.—A tall erect fleshy branched herb with elliptic leaves and small, yellow or pink, panicled flowers.

Talinum triangulare (Jacq.) Willd.

Occasional.—A succulent erect branched herb with obovate leaves and small, yellow, pink, or white flowers in few-flowered cymes.—The leaves of this and the preceding species make an excellent substitute for spinach, and the plants are well worthy of cultivation for the purpose.

CARYOPHYLLACEAE. Pink Family

Dianthus barbatus L.

Sp. *Clavel de poeta.* A native of Europe, listed by Gaumer as cultivated for its showy flowers.—*Sweet William.*

Dianthus Caryophyllus L.

Sp. *Clavel.* The carnation, of Old World origin, is grown for ornament in Yucatan, as it is generally in tropical America.

Dianthus chinensis L.

Sp. *Clavellina.* A native of China and Japan, listed by Gaumer as in cultivation in Yucatan.—*Pink.*

Silene latifolia (Mill.) Britt. & Rendle. *S. Cucubalus* Wibel.

Collected at Izamal as an escape, *Gaumer 545.* Native of the Old World.

NYMPHAEACEAE. Waterlily Family

Nymphaea ampla (Salisb.) DC. *Castalia ampla* Salisb.

Naab, Sacnab (Maler). Sp. *Sol de agua, Ninfa.* Common in lakes and pools.—*Waterlily.* A large plant with floating leaves and handsome showy white flowers; leaves orbicular, deeply cordate at the base, coarsely dentate.—The Maya name has been reported incorrectly as "lab." Stephens gives the name "xicinchah" for an aquatic plant which is apparently this.

Cabomba aquatica Aubl. has been reported from Yucatan, but the record is doubtful. It is probable that the plant does occur in the region.

RANUNCULACEAE. Buttercup Family

Clematis dioica L. *C. caripensis* HBK.; *C. flammulastrum* Griseb.

Mexnuxib. Sp. *Barbas de viejo, Barba española.* Common.—A woody vine with ternate leaves and panicled white flowers; leaflets ovate, acute or obtuse, entire, glabrous or nearly so; fruit a cluster of long-tailed achenes.—Cuevas states that the fluffy seed heads are used for stuffing pillows and cushions, and that a decoction of the root is applied to the gums and to cavities in the teeth to relieve pain in those organs. The shrub is a rather handsome one when in full blossom.

Delphinium Ajacis L.

Sp. *Espuela, Espuela de caballero, Míramelinda.* A native of Europe, grown for ornament in Yucatan, as it is in other parts of tropical America.—*Rocket larkspur.* The flowers are blue, white, or pink.

MENISPERMACEAE. Moonseed Family

Cissampelos Pareira L.

Tsutsuc, Tsutsuuc, Peteltun. Common.—*Velvet-leaf.* A woody vine with rounded velvety peltate leaves, small greenish dioecious flowers, and small red drupes.—The plant is employed locally as a diuretic and as a remedy for snake bites. Gaumer states that it has tonic and diuretic properties, and may be employed in treating chronic distention of the bladder and other disorders of the urinary organs, leucorrhea, dropsy, rheumatism, and jaundice.

The names "butua" and "pareira brava" are reported from Yucatan for the plant, but I assume that they are "book" names, rather than current vernacular terms. The Kekchí name is "kuxsoguí." The plant reported from Yucatan with the name "ix-peteltunak" is probably *Cissampelos.* The plant described by Cuevas (Pl. Med. 76, Ilustr. *pl. 30, f. 1.* 1913) as "petetunich" may belong here, for the illustration and description agree, except that *Cissampelos* does not have the milky sap which is mentioned by Cuevas. The name "ixcatucan" is reported for *Cissampelos Pareira* from Guatemala.

Hyperbaena nectandrifolia Standl. FMB. 8: 11. 1930.

Type from Izamal, *Gaumer* in 1888.—Probably a shrub; leaves petiolate, coriaceous, oblong, 11–24 cm. long, acute or acuminate,

at the base acute or acutish, glabrous, entire; flowers very small, in slender panicles slightly longer than the petioles.

Hyperbaena Winzerlingii Standl.

Sisal, *Schott 415*. Also in British Honduras.—A shrub or small tree, glabrous or nearly so; leaves short-petioled, mostly obovate or cuneate, most of them more or less 3-lobed near the apex, leathery, long-tapering to the base; flowers very small, in lax axillary panicles. —The determination of the two specimens available is not altogether certain, for both are sterile. They are referable either to this species or to a closely related one which is not described. The plant seems to have been overlooked by Dr. Millspaugh. The specimens were discovered in the herbarium labeled with the quaint name of "*Quercus aquatica* Catesb.," and it must be admitted that the foliage does suggest strikingly that of some forms of *Quercus nigra*.

Virola merendonis Pittier (Myristicaceae) is called "banak" and "palo de sangre" in British Honduras.

The Kekchí name of *Siparuna riparia* (Monimiaceae) is recorded as "chuche."

ANNONACEAE. Annona Family

Annona Cherimola Mill.

Pox, Poox. Sp. *Chirimoya*. Cultivated for its fruit.—A small tree with obtuse pubescent leaves; fruit globose or ovoid, the surface with rounded protuberances or marked with U-shaped areoles, sometimes nearly smooth.—The white pulp of the fruit is sweet and of pleasant flavor. The tree is believed to be a native of the Peruvian Andes, but it was introduced into Mexico at a very early date. The name "chirimoya" is of Peruvian origin. In the Kekchí dialect of Guatemala this species is called "tsumuy."

This is probably the *Annona* described by Cuevas (Pl. Med. 71, Ilustr. *pl. 26, f. 1*. 1913) under the name "*Anona glabra*." He gives the vernacular names as "op" and "anona," and states that the seeds are believed harmful to the eyes, and that the bark and root are poisonous. A decoction of the leaves is used as a lotion for burns, to reduce the pain. The pulverized seeds of this and other species are utilized as an insecticide.

Annona glabra L. *A. palustris* L.

Xmaak, Xmak. Sp. *Corcho, Palo de corcho. Bobwood, Corkwood* (B. H.). Frequent.—*Pond-apple, alligator-apple*. A small tree with

glabrous, usually acute leaves; fruit small, ovoid, smooth, yellow at maturity.—The tree grows usually at the edge of water. Its fruit is insipid and of little use for food. Gaumer reports that the plant has pectoral properties, and is used as a remedy in early stages of tuberculosis, and it is employed also for jaundice.

The Maya name for this species has been reported as "mac," "mak," and "xmacoop," and, incorrectly, as "mag."

Annona muricata L.

Takob. Sp. *Guanábano, Guanábana.* Cultivated for its fruit. Native region not definitely known, but the tree is planted throughout tropical America.—*Soursop.* A small tree with glabrous ill-scented leaves; fruit very large, covered with recurved fleshy spines, the flesh white, acidulous.—The fruit is used chiefly for making cool beverages and ices, to which it gives a distinctive and delicious flavor. It is also made into preserves, or eaten fresh. The juice is considered a remedy for dysentery.

The Motul Dictionary defines the word "poox" as "fruta grande y espinosa, especie de anonas," a description which applies only to *Annona muricata.* There is much confusion with regard to the Maya names of the *Annona* species, especially as to the application of the term "op" or "oop," but this is probably a generic term. The "zaop" is described as a "good-flavored anona with much flesh and few seeds." The name "xolop" is reported for a species of this genus, also the names "kanoop," "yaxoop," and "zacoop." The name "guanábana" is of Haitian origin.

Annona purpurea Moc. & Sessé.

Polbox ("black head"), *Chacoop.* Sp. *Anona morada.* Of frequent occurrence in the forests of the eastern part of the Peninsula.—A medium-sized tree with large broad leaves; flowers large, pendent, brown-purple; fruit ripening in August, ovoid or subglobose, about 15 cm. long, covered with large hard spinelike protuberances, and with a brownish felt; flesh orange-colored, fragrant, fibrous.—The fruit is of little value for eating, and in some regions is regarded as a source of chills and fevers. This species is widely distributed, ranging from southern Mexico to Venezuela.

Annona reticulata L.

Tsulipox, Zulipox, Pox. Sp. *Anona colorada.* Cultivated for its fruit. Native in Mexico and Central America, but perhaps not in this region.—*Custard-apple.* A small tree with narrow, nearly gla-

brous leaves; fruit large, its surface divided into angled areoles, the flesh sweetish and insipid.—This is a favorite fruit in Mexico and Central America, and is planted commonly. Its Maya name signifies stranger or exotic chirimoya. The Pokonchí name of Guatemala for this species is "pac." The name "cahuex" also is reported from Guatemala.

Annona squamosa L.

Tsalmuy. Sp. *Saramuya, Saramuyo.* Cultivated for its fruit. A native of tropical America but the native habitat uncertain.—*Sweetsop, sugar-apple.* A small tree with narrow, acute, nearly glabrous leaves; fruit globose or heart-shaped, as large as an orange, composed of loosely adherent carpels, these rounded at the apex and forming a tuberculate surface; flesh yellowish white, sweet, of agreeable flavor.—In Yucatan the leaves are placed in hens' nests to keep away vermin.

Guatteria leiophylla (Donn. Smith) Safford. *G. Gaumeri* Greenm. FMB. 2: 251. 1907.

Elemuy, Elemuy box. Apparently of frequent occurrence, growing in forests.—A large shrub or small tree 6–10 m. high, with narrow acute glabrous leaves; fruit a dense cluster of stalked berries.—The fluid extract, according to Gaumer, is efficient in expelling calculi of the kidneys and bladder, and it has been used also in the treatment of leucorrhea and gonorrhea. Cuevas states that "birds and Indians" eat the fruit. The type of *G. Gaumeri* was collected at Izamal by Gaumer.

The Maya name signifies burned or roasted rabbit. The name has been published also as "eklemuy," and it is recorded from Nakum, Petén, as "eklemoy."

Sapranthus campechianus (HBK.) Standl. CNH. 23: 279. 1922. *Asimia campechiana* HBK. Nov. Gen. & Sp. 5: 61. 1821. *Asimina insularis* Hemsl. in Hook. Icon. Pl. 16: *pl. 1514.* 1886. *Annona insularis* Millsp. FMB. 1: 17. 1895.

Chacmax (Schott). *Nitxmaxche* (Petén). Type collected near Campeche. Apparently frequent.—A tree about 10 m. high with soft-pubescent leaves and large flowers.—Known only from Yucatan, Petén, and Campeche. The type of *Asimina insularis* was collected on Cozumel Island by Gaumer in 1885.

LAURACEAE. Laurel Family

Cassytha filiformis L.

Occasional.—*Love-vine.* A yellow parasite resembling dodder (*Cuscuta*), the leaves reduced to scales; flowers minute, white; fruit small, globose, white, berrylike.

Nectandra sanguinea Rottb.

Apparently frequent in Yucatan and Campeche.—A tree with lanceolate to elliptic, glabrous leaves, and small white flowers.—This has been reported from Yucatan as *N. coriacea* (Sw.) Griseb. Specimens collected by Gaumer on Cozumel Island, and listed as *N. Willdenowiana* Nees (Millsp. FMB. 1: 18. 1895) probably belong to this species.

Nectandra globosa Mez is called "koyokiche" in the Kekchí dialect, and *Ocotea veraguensis* Mez "pububuk."

Persea americana Mill. *P. gratissima* Gaertn.

On. Sp. *Aguacate.* Planted commonly as a fruit tree. Native in Central America and northern South America.—*Avocado, alligator pear.* One of the most common and highly esteemed fruit trees of tropical America. The fruit varies greatly in size, shape, and color. The large thick-skinned avocados called "pahuas" are grown in Campeche. The "peeuon" is mentioned in the Motul Dictionary as a small early avocado of good flavor. In various Mayan dialects of Central America the avocado is called "o," "oj," and "un." The name "aguacate" is of Nahuatl origin.

In Yucatan the tree finds various applications in domestic medicine, astringent, expectorant, anthelmintic, antiperiodic, and emmenagogue properties being ascribed to it. An infusion of the leaves and seeds is administered for diarrhea and chronic catarrh. A belief that the fruit has aphrodisiac properties is general in Mexico and Central America, a belief perhaps based on the derivation of the Nahuatl name.

HERNANDIACEAE. Hernandia Family

Gyrocarpus americanus Jacq.

Ciis (reported also as "xkis"). Sp. *Volador, Palo hediondo.* Frequent.—A medium-sized deciduous tree with alternate, long-stalked, entire or palmately lobed leaves, and small unisexual flowers in cymes.—The nutlike fruit is surrounded by the enlarged calyx, which has 3 narrow lobes 10–12 cm. long. When the fruit falls from

the tree, it whirls about and floats gently to the ground like a parachute, hence the name "volador." The wood is white, very soft, and light in weight.

PAPAVERACEAE. Poppy Family

Argemone mexicana L. *A. mexicana* var. *ochroleuca* Lindl.

Kixzaclol, Kixkanlol, Kanlal (Motul Dict.), *Ixkanlol* (Pérez). Sp. *Cardosanto.* A common weed.—A large, very prickly herb with yellow sap; leaves alternate, deeply lobed.—The flowers are either yellow or (var. *ochroleuca*) whitish, the latter being, apparently, the common form in Yucatan.

The decoction of the plant is employed locally for affections of the liver and spleen, and for jaundice, biliousness, and lack of appetite. The powdered seeds are administered as an emetic and purgative, and pectoral and soporific properties are attributed to them. The sap is employed as a remedy for skin diseases and inflammation of the eyes.

Among the Guatemalan names reported for the plant are "cahhuoc" and "kixatucan."

CAPPARIDACEAE. Caper Family

Capparis cynophallophora L. *C. amygdalifolia* Millsp. FMB. 1: 297. 1896, not Jacq.

Frequent in thickets.—A shrub or small tree 2–5 m. high; leaves elliptic, acute, glabrous above, lepidote beneath; flowers white or purplish, fragrant.—Known in Mexico only from Yucatan.

Capparis flexuosa L. *C. "cynocephallophora"* Millsp. FMB. 1: 362. 1898, not *C. cynophallophora* L.

Xbayunak (Gaumer); reported also as "xpayumac" and "xpayunak." Collected at Mérida, Progreso, and Izamal.—A glabrous shrub; leaves oblong to obovate, rounded or retuse at the apex; flowers white, fragrant; fruit long and slender, the seeds imbedded in scarlet pulp.—This species has been known generally as *C. cynophallophora.*

Capparis incana HBK.

Xcoche. Frequent in thickets.—A shrub or small tree 2–6 m. high, the pubescence of grayish or rusty stellate hairs; leaves small, lanceolate to elliptic, acuminate to obtuse; flowers white; fruit

globose or oblong.—Some of the Yucatan specimens have been distributed as *C. asperifolia* Presl.

Capparis indica (L.) Fawc. & Rendle. *C. amygdalina* Lam.; *C. Grisebachii* Millsp. & Loes. BJE. 36: Beibl. 80: 16. 1905, perhaps not Eichl.

Infrequent.—A shrub or small tree with linear to obovate, acute or obtuse, lepidote leaves; fruit slender, torulose, 6–25 cm. long.

Capparis oxysepala C. Wright.

Chochcitam. Tsilám, *Gaumer 661.*—A tree 9 m. high; leaves oblong-obovate, glabrous, obtuse or rounded at the apex; flowers large, white.—Called "zapote prieto" in Oaxaca.

Capparis verrucosa Jacq.

Sp. *Naranjilla.* Nakúm, Petén, *Cook & Martin 85.*—A shrub or small tree, nearly glabrous; leaves subsessile, oblong, acute; flowers large, white; fruit oblong, 2.5–6 cm. long, tuberculate.

Cleome aculeata L. *C. polygama* Millsp. FMB. 1: 297. 1896, not L.

Sp. *Flor de caballero.* San Anselmo, *Gaumer 2060;* Tsilám, *Gaumer 617.*—A small annual, armed with axillary spines; leaflets 3; flowers small, white.

Cleome spinosa Jacq.

Collected at Izamal and Mérida.—An erect herb, armed with axillary spines; leaflets 5 or 7; flowers purple or whitish.

Crataeva Tapia L. *C. gynandra* Millsp. FMB. 1: 297. 1896, 1: 362. 1898; Millsp. & Loes. BJE. 36: Beibl. 80: 16. 1905, perhaps not L. *Morisonia americana* Cuevas, Pl. Med. 56. 1913, not L.

Kolokmax (Gaumer), *Yuy* (B. H.). Sp. *Cascorrón, Tres Marías. Waika bead* (B. H.). Common.—A glabrous tree 6–9 m. high; leaves deciduous, with 3 entire ovate acute leaflets; flowers green or purplish, racemose or corymbose; fruit globose, 3–5 cm. in diameter, green or yellow.—The roots are acrid, and their juice, applied to the skin, produces blisters. The plant is used locally as a remedy for rheumatism, the tincture of the leaves and fruit being applied as a lotion. The name "yuy" is reported by Blanco as the name of a tree of Quintana Roo.

Forchammeria trifoliata Radlk. FMB. 1: 399. 1898. *Ptelea pentandra* Millsp. FMB. 1: 25. 1895, not DC.

Sp. *Tres Marías* (Yuc., B. H.). Common; type, *Gaumer 417;* occurring in the Yucatan Peninsula and in Salvador.—A glabrous tree sometimes 18 m. high; leaves long-stalked, with 3 coriaceous obovate-oblong leaflets; flowers small, green, panicled.—It is stated that in British Honduras the leaves are applied by the Indians to the soles of the feet to cure fevers.

Gynandropsis gynandra (L.) Briq. *G. pentaphylla* DC.

San Ignacio, *Seler 3812;* Mérida, *Seler 3851.*—A glandular-pubescent annual; leaflets 3 or 5; bracts of the inflorescence 3-foliolate; flowers small, white or pink.

Gynandropsis speciosa (HBK.) DC.

Yot Tsonot, *Gaumer 1329;* Calotmul, *Gaumer 2309.*—A large, glabrous or pubescent herb; leaflets 5 or 7; bracts entire; flowers large, pink or rarely white.—A showy plant with handsome flowers, often cultivated for ornament.

CRUCIFERAE. Mustard Family

Brassica campestris var. **Rapa** (L.) Hartm.

Sp. *Nabo.—Turnip.* A plant of Old World origin, cultivated as a vegetable.

Brassica integrifolia (West) O. E. Schulz.

Sp. *Mostaza.* Collected at Calotmul and Chichankanab, *Gaumer 1782, 1781;* Izamal, *Gaumer* in 1888; without locality, *Gaumer 1668.* An Old World plant, found as an escape in various parts of tropical America.—The Yucatan specimens have been determined previously as *B. Rapa* L.

Brassica oleracea L.

Sp. *Repollo, Col.—Cabbage.* A plant of Old World origin, grown commonly as a vegetable in Yucatan as well as elsewhere in tropical America.

Cakile edentula (Bigel.) Hook. *C. aequalis* Millsp. FMB. 1: 18. 1895, 1: 297. 1896, 2: 128. 1900, not L'Hér. *C. maritima* Millsp. FMB. 1: 362. 1898, 2: 43. 1900, not Scop. *C. cubensis* Millsp. FMB. 2: 131. 1900, not HBK. *C. alacranensis* Millsp. FMB. 2: 130. 1900. *C. edentula* var. *americana* O. E. Schulz; *C. edentula* var. *alacranensis* O. E. Schulz in Engl. Pflanzenreich IV. 105 (Heft 84): 27. 1923.

A common plant of seashores.—A stout fleshy glabrous herb; leaves alternate, linear-lanceolate to oblong or obovate, entire or

sinuate-dentate, petioled; flowers in long racemes; fruit a hard jointed beaked pod.—*C. alacranensis* was based on *Millspaugh 1744, 1764,* and *1767* from Pérez and Pájaros Islands. Schulz, in his monograph of the genus, recognized two varieties from this region: *C. edentula* var. *americana,* in which the upper joint of the fruit is slender, 0.5 mm. broad at apex, and acute; and *C. edentula* var. *alacranensis,* in which the upper joint is short-ovoid or subglobose, up to 1 cm. in diameter, and very shortly attenuate.

Lepidium virginicum L. *L. apetalum* Millsp. FMB. 1: 297. 1896, 2: 43. 1900; Millsp. & Loes. BJE. 36: Beibl. 80: 16. 1905, not Willd. *L. virginicum* subsp. *centrali-americanum* Thell.

Putxiu, Putcan (Gaumer). Sp. *Mastuerzo.* A common weed; probably introduced, perhaps from the United States.—*Peppergrass.* A low annual with pinnatifid leaves and small white flowers in long racemes; pods small, orbicular, obcompressed, notched at apex.—The plant has a pungent flavor. Cuevas (Pl. Med. 81. 1913) states that it is used as an emmenagogue and as a remedy for stomach affections. Diuretic properties also are attributed to it, and it is employed in the treatment of kidney diseases.

The Pérez dictionary lists the name "cabaput," with the definition "mastuerzo yerba," which would seem to indicate this plant.

Roripa Nasturtium-aquaticum (L.) Rusby. *Nasturtium officinale* R. Br.

Sp. *Berros.* Listed in Gaumer's Sinonimía.—*Watercress.* This is a popular salad plant in Mexico and Central America, and is grown wherever conditions are suitable. It is a native of Europe.

Raphanus sativus L. *R. Raphanistrum* Millsp. FMB. 1: 362. 1898, not L.

Sp. *Rábano.* Cultivated as a vegetable; sometimes found as an escape from cultivation; native of Asia.—*Radish.*

RESEDACEAE. Mignonette Family

Reseda odorata L.

Sp. *Resedán.* Listed in Gaumer's Sinonimía, and doubtless cultivated in the Peninsula for its fragrant flowers. Native of northern Africa.—*Mignonette.*

MORINGACEAE. Horseradish-tree Family

Moringa oleifera Lam. *M. pterygosperma* Gaertn.; *M. aptera* Gaertn.

Sp. *Paraíso blanco, Paraíso de España, Acacia* (Gaumer). Planted as a shade tree. Native of the East Indies.—*Horseradish-tree.* A small tree with 2 or 3 times pinnate leaves, white flowers, and long 3-angled pods containing winged seeds.—The roots have the odor and flavor of horseradish. From the seeds is extracted ben oil, used for lubricating delicate machinery.

CRASSULACEAE. Orpine Family

Bryophyllum pinnatum (Lam.) Kurz.

Sisalxiu, Tzitzalxiu, Tzitzilxiu. Sp. *Siempreviva, Admirable, Sinvergüenza* (Maler). Grown in gardens and also naturalized. Probably native of Asia.—A succulent herb with simple or pinnate leaves.—The plant is remarkably tenacious of life. If a leaf is separated from the plant and laid upon the ground, or even upon a stone, buds and new plants form at the marginal serrations.

ROSACEAE. Rose Family

Chrysobalanus Icaco L.

Sp. *Icaco. Coco-plum* (B. H.). Probably common along the coast.—*Coco-plum* or *pigeon-plum.* A shrub with small thick leaves; flowers small, white; fruit a drupe 2–4 cm. long, white or purple.—The edible but insipid fruit is eaten fresh or made into dulces. The seeds are said to have an agreeable flavor and to be rich in oil.

Couepia dodecandra (DC.) Hemsl.

Uspib (Gaumer). Cultivated, and probably wild in the southern part of the Peninsula.—A tree about 10 m. high with oblong, obtuse or acute, entire leaves which are white-tomentose beneath; flowers in thyrselike panicles; fruit ellipsoid, 5–6.5 cm. long, 1–2-seeded.—The fruit is edible. Known in Tabasco as "pío" or "uspío"; in British Honduras as "baboon-cap." This is probably the plant listed from Yucatan as "uzbib."

Many varieties of roses ("rosas") of the genus *Rosa* are grown for ornament in the gardens of the Peninsula.

Hirtella americana L. is known in British Honduras as "uayamche," "wild coco-plum," "pigeon-plum," and "granada."

Licania hypoleuca Benth. is called "pigeon-plum" and "chozo" in British Honduras.

LEGUMINOSAE. Bean Family

Acacia angustissima (Mill.) Kuntze. *A. filicina* Millsp. FMB. 1: 298. 1896, not Willd.

Xaax (Gaumer). *Kantemo* (Gaumer; Yuc., Tab.). *Uaxim* (Gaumer; Nahuatl). Common in thickets.—A shrub or small tree, unarmed, pubescent or glabrate; leaves bipinnate, the leaflets numerous, oblong, 3–5 mm. long; flowers white, pedicellate, in globose heads; pods flat, thin.—The Maya name is reported also as "kantebo." Cuevas states that a tree he lists as "kantemo" is employed as a remedy for enlarged spleen.

Acacia Collinsii Safford. *A. cornigera* Millsp. FMB. 1: 19. 1895, in part, not Willd. *A. spadicigera* Millsp. FMB. 1: 19. 1895, 1: 298. 1896, 1: 363. 1898, not Schlecht. & Cham. *?A. campecheana* Schenck, Repert. Sp. Nov. 12: 361. 1913. *A. yucatanensis* Schenck, Repert. Sp. Nov. 12: 361. 1913.

Zubin (Gaumer; "spur"). Sp. *Cornezuelo.* Common.—*Bullhorn acacia.* A shrub or small tree, armed with pairs of large hollow brown spines 3–5 cm. long; leaflets numerous, oblong, 1 cm. long or smaller; flowers yellow, in short, very dense, thick spikes; fruit terete, short, dehiscent by 2 sutures.—This species and *A. globulifera* belong to the interesting American group of bullhorn acacias, which have large inflated spines resembling the horns of a bull. These spines are practically always inhabited, each by a separate colony of ants, which enter at a small hole punctured near the apex of the spine. They feed upon nectar bodies borne upon the young leaves. When the plant is molested in any way, the ants sally forth immediately and attack the offending object, inflicting very painful bites.

The type of *A. campechiana* was collected in Campeche by Chrismar. The type of *A. yucatanensis* is *Seler 5549* from Yucatan.

Acacia dolichostachya Blake, Proc. Biol. Soc. Washington 34: 43. 1921. *A. acatlensis* Standl. CNH. 23: 378. 1922, in part, not Benth. *Senegalia dolichostachya* Britt. & Rose, N. Amer. Fl. 23: 112. 1928.

Endemic; type from Bocas de Tsilám, *Gaumer 23329;* Tsilám, *Gaumer 679;* Chichankanab, *Gaumer 1353, 1358.*—An unarmed tree sometimes 10 m. high, nearly glabrous; pinnae about 5 pairs, the leaflets about 25 pairs, linear-oblong, 3.5 mm. long; flowers pale yellow, in dense spikes 3–4 mm. long.

Acacia Farnesiana (L.) Willd.

Kankilizche (Gaumer; reported also as "kankirische" and "kantiriz"), *Subin* (Seler), *Subinche* (Seler). Sp. *Aroma* (Yuc.), *Huizache* (Camp., a Nahuatl name). Common.—*Opoponax.* A shrub or small tree armed with long whitish spines; leaflets numerous, 2–6 mm. long; flowers bright yellow, very fragrant, in dense globose heads; pods terete, 5–7.5 cm. long, glabrous.—The wood is hard, close-grained, brownish red to yellow, and heavy. The shrub is grown in southern Europe for its flowers ("cassie flowers" of commerce), from which perfume is made. In the Peninsula ink is sometimes made from the pods. This species may be the tree reported by the Motul Dictionary under the name "kantix." The flowers are used locally as a remedy for nervous diseases.

Acacia Gaumeri Blake, Proc. Biol. Soc. Washington 34: 44. 1921. *Senegalia Gaumeri* Britt. & Rose, N. Amer. Fl. 23: 110. 1928.

Catzim (Gaumer), *Yaxcatzim* (Gaumer), *Catzin.* Common; endemic; type from Tsilám, *Gaumer 23332;* south of Chobenche, *Gaumer;* without locality, *Gaumer 24253, 23954;* Izamal, *Gaumer 701;* Buena Vista, *Gaumer* in 1899; Chichankanab, *Gaumer 1494, 1924.*—A tree 8 m. high armed with numerous short dark recurved prickles; pinnae 4 pairs, the leaflets 9–16 pairs, oblong, 8–11 mm. long, pubescent beneath or glabrate; flowers in panicled spikes 1–1.5 cm. long; pods broad, flat, thin, glabrous.

Acacia globulifera Safford, Journ. Washington Acad. Sci. 4: 360. 1914. *A. cornigera* Millsp. FMB. 1: 19. 1895, in part, not Willd. *A. sphaerocephala* Millsp. FMB. 1: 298. 1896, not Schlecht. & Cham. *Myrmecodendron globuliferum* Britt. & Rose, N. Amer. Fl. 23: 93. 1928.

Zubin (Gaumer), *Zubinche, Zaczubinche* (Gaumer). Sp. *Cornezuelo, Cornezuelo blanco.* Occasional; endemic; type from Tsilám, *Gaumer 655.—Bullhorn acacia.* A shrub armed with large hollow whitish spines; leaflets numerous, oblong, 3–4 mm. long; flowers yellow, in dense globose heads.

Acacia Milleriana Standl. Journ. Arn. Arb. 11: 29. 1930, *Mimosa campechiana* Mill. Gard. Dict. ed. 8. *Mimosa* No. 20. 1768. not *A. campechiana* Schenck, 1913. *A. Farnesiana* Millsp. FMB. 1: 298. 1896, not Willd. *Poponax campechiana* Britt. & Rose, N. Amer. Fl. 23: 90. 1928.

Chimay (Gaumer). Common in thickets; type from Campeche.—A shrub or small tree armed with stout compressed spines

2.5–5 cm. long; leaflets very numerous, linear, 2 mm. long; flowers yellow, in globose heads; pods 10–12 cm. long, somewhat compressed, scarcely dehiscent.—This has been reported from Yucatan as *A. macracantha* H. & B.

Acacia riparioides (Britt. & Rose) Standl., comb. nov. *Senegalia riparioides* Britt. & Rose, N. Amer. Fl. 23: 117. 1928.

Yaxcatzim (Yuc., Gaumer), *Chukem* (B. H.), *Chukum* (B. H.). Frequent.—A large shrub, usually scandent, armed with very short, recurved prickles; leaflets numerous, linear-oblong, 5–7 mm. long; flowers creamy white, in panicled globose heads; pods flat, about 9 cm. long and 2 cm. wide.—A plant reported from Yucatan under the name "chukun" probably belongs here.

Acacia sesquijuga (Britt. & Rose) Standl., comb. nov. *Acaciopsis sesquijuga* Britt. & Rose, N. Amer. Fl. 23: 95. 1928.

Cabico (Gaumer). Endemic; Tsilám, *Gaumer 1307*, type; Progreso, *Gaumer 2297*.—A shrub or small tree; pinnae 1 pair, the leaflets 3 or 4 to each pinna, obovate, rounded at the apex, 1.5–3 cm. long, glabrous; flowers in dense elongate spikes.

Albizzia tomentosa (Micheli) Standl. *Pithecolobium tomentosum* Micheli.

Xiahtsimin (Gaumer). Frequent.—A tree 6–15 m. high; leaves bipinnate, the leaflets numerous, oblong, rounded at the apex, puberulent, 1–1.8 cm. long; flowers white, in globose panicled heads; pods thin, flat, broad.

Calliandra Cookii (Britt. & Rose) Standl., comb. nov. *Anneslia Cookii* Britt. & Rose, N. Amer. Fl. 23: 68. 1928.

Type collected between Yaxmuxan and Yaxha, Petén, Guatemala, *Cook & Martin 209*.—Glabrous; pinnae 1 or 2 pairs, the leaflets 3 pairs, broadly obovate, membranous, 2–3.5 cm. long, rounded at the apex; pods 10 cm. long and 1 cm. wide.

Calliandra Grisebachii (Britt. & Rose) Standl., comb. nov. *C. gracilis* Griseb. Mem. Amer. Acad. II. 8: 180. 1860, not Klotzsch. *Anneslia Grisebachii* Britt. & Rose, N. Amer. Fl. 23: 67. 1928.

Uaylahaltsac (Gaumer); reported also as "cabalpich" and "yalahatsac." Common.—A slender shrub 1–2.5 m. high, nearly glabrous; leaves bipinnate, the pinnae 2 pairs; leaflets 5–7 pairs, oval or oblong, 5–25 mm. long; flowers white, in long-stalked panicled heads; pods flat, elastically dehiscent, 6–7 cm. long, about 4 mm. wide.—This has been reported from Yucatan as *C. formosa* Benth.

Calliandra portoricensis (Jacq.) Benth.

Rare.—A slender shrub, nearly glabrous; pinnae 3 or more pairs; leaflets 8–15 pairs or more, 1.8 cm. long or shorter; flowers white; pods 8 mm. wide.

Calliandra yucatanensis (Britt. & Rose) Standl., comb. nov. *Anneslia yucatanensis* Britt. & Rose, N. Amer. Fl. 23: 53. 1928.

Without locality, *Gaumer 24240*, type.—A shrub; pinnae 1 pair; leaflets usually 3 to each pinna, oblong-obovate, rounded at the apex, glabrous; flowers purple, in few-flowered peduncled heads.

Desmanthus virgatus (L.) Willd. *Acuan virgatum* Medic.; *D. depressus* Millsp. FMB. 1: 20. 1895, 1: 367. 1898, not Humb. & Bonpl.

Cabalpich (Gaumer); reported as "cambapich." Frequent.—Plants usually a meter high or less, herbaceous or suffrutescent, unarmed; leaves bipinnate, the leaflets numerous, oblong, 2–4 mm. long, ciliate; flowers white, in globose slender-stalked heads; pods flat, 4.5–10 cm. long, 3–5 mm. wide, acute, glabrous.

Enterolobium cyclocarpum (Jacq.) Griseb. *Calliandra portoricensis* Millsp. FMB. 1: 298. 1896, 1: 364. 1898, not Benth.

Pich. Sp. *Guanacaste* (B. H.; of Nahuatl derivation). *Tubroos* (B. H.). Common.—*Ear-tree.* A giant deciduous tree with broad spreading crown; leaves bipinnate, the leaflets very numerous, linear-oblong, 10–12 mm. long; flowers small, white, in long-stalked globose heads; fruit a broad, flat, dark brown, coiled pod.—The wood, which is grayish tinged with yellow, hard, resistant, and elastic, is used for furniture and for general construction. In Tabasco the tree is called "piche." It has been listed from Yucatan as "*Inga xylocarpa* DC."

The genus *Inga* probably is represented in the southern part of the Peninsula. Maler reports from Chiapas the Maya name "huitz" for a tree of this genus. Among the names used in Tabasco for the species are "guatope," "chelele," and "bitze."

Leucaena glauca (L.) Benth.

Uaxim (Gaumer); reported as "xaxim." Sp. *Guaje* (of Nahuatl derivation, as is probably also the Maya name). Frequent.—A shrub or tree, rarely 10 m. high; leaves bipinnate, the leaflets numerous, narrowly oblong, acute, 7–15 mm. long, nearly glabrous; flowers whitish, in dense globose peduncled axillary heads; pods flat, 10–15

cm. long, 1.5 cm. wide.—The wood is hard, close-grained, and light brown.

Lysiloma bahamense Benth. *L. latisiliqua* Millsp. FMB. 1: 300. 1896, not Benth.

Tzalam (Gaumer); reported also as "zalam." Frequent.—A tree sometimes 16 m. high; leaves bipinnate, the leaflets numerous, oblong, obtuse, 1 cm. long, pale beneath, nearly glabrous; flowers white, in globose peduncled heads; pods flat, thin, 8–15 cm. long, 2.5 cm. wide.—The wood is hard, tough, close-grained, and dark reddish brown. In Mexico the species is known only from this region.

Mimosa albida Humb. & Bonpl.

Frequent.—A shrub 1–3 m. high, armed with short recurved prickles; pinnae 1 pair, the leaflets 1 or 2 pairs, 3–8 cm. long, obtuse, pubescent; flowers pink, in racemose globose heads; pods 2–3 cm. long, 5 mm. wide, hispid.

Mimosa Ervendbergii Gray.

Sp. *Sierrilla.* Atasta, Campeche, *Rovirosa 655.*—A scandent shrub armed with very short, recurved prickles; leaflets numerous, 1–3 cm. long, rhombic-oblong; flowers in panicled heads.

Mimosa hemiendyta Rose & Robins. CNH. 8: 32. 1903. *Pteromimosa hemiendyta* Britt. & Rose, N. Amer. Fl. 23: 172. 1928.

Zaccatzim (Gaumer); reported also as "sascatzim." *Catsem logwood, Logwood brush, Bastard logwood* (B. H.). Common; endemic; type from Apazote, Campeche, *Goldman 513.*—A shrub or small tree 2–6 m. high, armed with short prickles; leaflets numerous, oval or oblong, 4–5 mm. long, glabrate; flowers pink, in dense panicled heads; pods flat, the margins with a thin lacerate wing.—There is reported from Yucatan a "boxcatzim," which is probably of this genus or family, but it has not been identified.

Mimosa pigra L. *M. asperata* L.

Petén, and doubtless elsewhere in the region.—A shrub 1–2 m. high, armed with stout pale prickles, usually growing in water; leaves prickly, the numerous leaflets linear, 5 mm. long; flowers pink, in globose heads; pods 1 cm. wide, hispid.

Mimosa pudica L.

Xmuts (Gaumer), *Xmumuts* (Pérez). Sp. *Dormilona, Sensitiva.* A frequent weed.—*Sensitive-plant.* A slender annual; leaflets numerous, linear-oblong, 1 cm. long, setose-ciliate; flowers pink, in

globose slender-peduncled heads; pods prickly.—The leaves are sensitive, the leaflets folding together if touched, and also at night or in cloudy weather. The Kekchí name is "kak-kix."

Mimosa somnians Humb. & Bonpl.

Sp. *Zarza* (Camp.). Campeche and perhaps elsewhere.—A small shrub armed with stout prickles, glandular-pubescent; leaflets numerous, oblong, 4–5 mm. long; flowers pink, in heads; pods 3–4 mm. wide.

The plant collected by Johnson and listed (Millsp. FMB. 1: 20. 1895) as *M. trijuga* Benth. is doubtful, but it may be *M. somnians*.

Pithecolobium albicans (Kunth) Benth. Trans. Linn. Soc. Bot. 30: 592. 1875. *Acacia albicans* Kunth, Mimos. Pl. Légum. 87. *pl. 27*. 1819–24. *P. brevifolium* Millsp. FMB. 1: 300. 1896, not Benth.

Chucum (Gaumer), *Chimay* (Gaumer). Sp. *Huisache* (Camp.; a Nahuatl word). Common; endemic; type from Campeche.—A tree sometimes 20 m. high, armed with short spines; leaves bipinnate, the leaflets numerous, oblong, 3–6 mm. long; flowers in panicled heads; fruit flat, thin, 10 cm. long, finely pubescent.—The wood is used for rafters and other construction purposes. The bark is reported to be rich in tannin, and to be used for tanning skins. An infusion of the bark is employed as a remedy for diarrhea.

There are reported also "chac-chucum," which has red wood, and "sac-chucum," with white wood. The former is probably *Pithecolobium albicans*. The wood is said to be used for railroad ties and other purposes. Formerly, in order to make the *calicanto* floors harder and more durable, the bark of this tree was soaked in water, coloring it red, and the infusion was then poured over the floor at intervals of several days, treading the floor thoroughly each time. The "sacchucum," which is probably some other species, is used for tanning, also as an astringent and a remedy for dyspepsia.

Pithecolobium calostachys Standl.

Chichankanab, *Gaumer 23703*.—A spiny tree 10 m. high or less; leaflets 4, oval or obovate, obtuse or acute, glabrate; flowers spicate; pods terete, constricted, dehiscent, the seeds with a large fleshy aril.—This is perhaps the tree which has been reported (Millsp. FMB. 1: 19. 1895) from the region as *P. ligustrinum* Klotzsch, and for which Gaumer reports the name "tuncuy."

Pithecolobium flexicaule (Benth.) Coulter.

Frequent.—A spiny shrub or small tree; pinnae 2 or 3 pairs, the leaflets 3–5 pairs, oblong or obovate, 5–12 mm. long, glabrous; flowers in short spikes; pods very hard and woody, somewhat compressed, 10–15 cm. long, 2.5 cm. wide.—The wood is hard, close-grained, dark red or purplish brown, with yellow sapwood, and heavy.

Pithecolobium keyense Britton. *P. guadalupense* Standl. CNH. 23: 395, in part. 1922.

Collected at Tsilám, Progreso, and on Cozumel Island.—An unarmed shrub or small tree; leaflets 4, obovate, 4–7 cm. long, rounded at the apex, coriaceous, glabrous; flowers pink, in slender-stalked heads; pods compressed, 10–15 cm. long, twisted, dehiscent; seeds with a red fleshy aril.—The species is known in Mexico only from this region.

Pithecolobium Saman (Willd.) Benth.

Sp. *Algarroba*. Occasional.—A large tree; leaflets oblong, rhombic, or obovate, 2–4 cm. long, pubescent; flowers pink, in dense long-stalked globose umbels; pods compressed, thick, 10–20 cm. long, 1–2 cm. wide, pulpy within.

Pithecolobium platylobum (Spreng.) Urban. *P. sericiflorum* Benth.

Occasional.—A small spiny tree; leaflets numerous, large, rounded-obovate, glabrous or nearly so; flowers in few-flowered slender-stalked heads.

Pithecolobium leucospermum Brandeg. *Lysiloma Sabicu* Millsp. FMB. 1: 300. 1896, not Benth. *P. tortum* Millsp. & Loes. BJE. 36: Beibl. 80: 17. 1905, not Mart. *Chloroleucon leucospermum* Britt. & Rose.

Yaaxek (Gaumer); reported as "xiaxek." Common.—A spiny shrub or small tree; leaflets numerous, oblong or obovate, 7–15 mm. long, pubescent or glabrous, rounded at the apex; flowers in slender-stalked, mostly solitary heads; pods compressed, glabrous, often 20 cm. long, 7–10 mm. wide.—The strong wood is used for construction purposes. The outer bark peels off and hangs on the trunk in long shreds.

Pithecolobium Unguis-cati (L.) Mart. *P. oblongum* Millsp. FMB. 1: 19. 1895, 2: 45. 1900, not Benth.

Tsuiche (Gaumer); reported also as "tsiuche." Common.—A spiny shrub or small tree; leaflets 4, obovate, 2–4 cm. long, rounded at the apex, glabrous or nearly so; flowers greenish yellow, fragrant, in racemose slender-stalked globose heads; pods 8–12 cm. long, 6–12 mm. wide, twisted.—The white or reddish aril surrounding the seeds is sweet and edible. The plant is reported to have astringent properties, and is employed as a remedy for chronic diarrhea, hemorrhages, and bronchial affections. The hard wood is much used in the construction of houses.

The tree reported from Yucatan as *Inga dulcis* Willd. (a synonym of *Pithecolobium dulce* Benth.) may be *P. Unguis-cati*. It is said to bear the name "tsitsilche."

Pithecolobium latifolium (L.) Benth. is known in British Honduras by the names "chililllo" and "chec-che." *P. albicaule* Britt. & Rose is called "chickem" in the same country, and an undetermined species of *Pithecolobium* is reported to bear the name "yaxek."

Prosopis chilensis (Molina) Stuntz. *P. juliflora* DC.

Catzimek (Gaumer). Sp. *Mezquite.* Common.—*Mesquite.* A large spiny shrub or tree sometimes 12 m. high; leaves bipinnate, the leaflets linear-oblong, 5–10 mm. long, glabrous; flowers small, greenish yellow, fragrant, in slender spikes; pods 10–20 cm. long, 1 cm. wide, compressed, hard, with sweet pulp.—The wood is hard, close-grained, and dark red or brown, with yellow sapwood. The flowers are much visited by bees. The pulp of the pods is edible, and the pods are eaten by cattle.

Bauhinia divaricata L. *B. pes-vaccae* Dondé, Emulación 3: 15. 1878. *B. Lamarckiana* Millsp. FMB. 1: 20. 1895, not DC.

Tsulubtok (Gaumer), *Utsomeltok* (Cuevas). Sp. *Pata de vaca* (Yuc., B. H.), *Calzoncillo.* Common.—A shrub or small tree; leaves 3–9 cm. wide, subcordate, deeply bilobate, the lobes obtuse or acute; flowers white, racemose, 2 cm. long; only 1 or 2 of the stamens fertile.—The inner bark is sometimes used for making rope and twine. The infusion of the flowers is said to have expectorant properties, and is a domestic remedy for bronchitis. The infusion of the leaves is used as a lotion for sore feet, and to relieve lameness.

Bauhinia glabra Jacq.

Frequent.—A scandent unarmed shrub; leaves 5–7.5 cm. long, bilobate, the lobes obtuse, brown-sericeous beneath; flowers in long

racemes, the calyx densely brown-pubescent; stamens 10; pods flat, 2–3-seeded, densely pubescent.

Bauhinia Jenningsii P. Wilson.

Puerto Morelos, *Goldman 624;* known otherwise only from the Isle of Pines, Cuba.—An unarmed shrub; leaves ovate-oblong, 4.5–10 cm. long, entire, acute or obtuse, pale beneath; flowers 1.5 cm. long.

Bauhinia spathacea DC. *B. divaricata* Millsp. FMB. 1: 20. 1895, in part, not L. *B. latifolia* Millsp. FMB. 1: 20. 1895, not Cav. *B. porrecta* Millsp. FMB. 1: 364. 1898, not Swartz.

Tsulubtok, Zactsulubtok. Sp. *Pata de vaca, Mano de vaca.* Common.—A shrub or small tree; leaves 2–2.5 cm. wide, shallowly bilobate, the lobes short, rounded; flowers white, in short dense racemes; stamens all except 1 or 2 sterile.—The specimens referred here are very close to *B. divaricata,* and perhaps not specifically distinct. The plant is said to be used as a remedy for asthma.

Bauhinia ungulata L. *B. Cavanillei* Millsp. FMB. 1: 364. 1898.

Chactsulubtok (Gaumer). Sp. *Pie de venado.* Common.—An unarmed shrub or small tree; leaves 3–10 cm. wide, bilobate, the lobes narrow, acute, glabrous above, brown-pubescent and gland-dotted beneath; flowers 4–5 cm. long, in long racemes, the 10 stamens white.—The extract of the plant is reported to have purgative and vermicidal properties, and is administered to expel intestinal parasites. Schott states that the plant has sudorific properties. The flexible poles cut from the tree are much used for constructing huts.

The plant collected by Johnson and reported as *B. splendens* HBK. (Millsp. FMB. 1: 364. 1898) is doubtful.

Caesalpinia Crista L. *C. bonducella* Fleming.

Sp. *Taray, Cojón de gato.* Common on seashores.—*Nickernut.* A low shrub armed with numerous prickles, the branches long and straggling; leaves bipinnate, prickly, the leaflets 1.5–4 cm. long; flowers small, greenish yellow, racemose; pods 6–8 cm. long and nearly as broad, densely covered with long prickles; seeds globose, gray, 2 cm. in diameter.—The seeds are one of the "sea beans" found commonly on tropical shores. The shrub is confined to the narrow belt of thicket edging sea beaches. In places much exposed to wind it forms low and very compact thickets, but if somewhat protected the branches are frequently long and straggling.

Caesalpinia Gaumeri Greenm. FMB. 2: 330. 1912.

Citinche (Gaumer). Frequent; endemic; type from Progreso, *Millspaugh 1675*.—A tree, said to reach a height of 20 m., unarmed; leaflets numerous, rhombic, 2–3 cm. long, glabrate; flowers large, yellow, in long racemes; pods flat, elastically dehiscent.—The wood is reported to be used for telegraph poles.

Caesalpinia platyloba Wats.

Chacte (Gaumer; "red tree"). Sp. *Brasil, Brasilete. Braziletto* (B. H.). Common.—A tree, reported to attain a height of 18 m., unarmed; leaflets ovate or oblong, acute to rounded at the apex, 2–5.5 cm. long, pubescent; flowers yellow, in long racemes, the largest sepal pectinate-lobed; pods broad, flat, thin, pubescent, indehiscent, 6–13 cm. long.—The wood is hard, heavy, and close-grained. It yields a red dye, which is said to be the pigment used in imprinting the "red hand" found on the walls of many of the Maya buildings. Some of the Yucatan specimens have been referred to *C. cubensis* Greenm.

One writer (Agricultor 2: 102) states that there are three kinds of chacte, the best being "sac-chacte," which is used for rafters of houses. "Chactecoc" is a dyewood, perhaps the species here considered. "Luumchacte" or "chactechuhum" is an inferior wood. The wood of all three is employed for cart axles and railroad ties. It is probable that these names relate to distinct species, and perhaps even to trees of other genera or families.

Caesalpinia pulcherrima (L.) Sw.

Chaczinkin (red-flowered form), *Kanzinkin* (yellow-flowered form); also listed as "sikin." Sp. *Flor de camarón, Guacamayo.* Cultivated commonly and naturalized; perhaps native.—A glabrous shrub or small tree, unarmed or prickly; leaflets oblong to oval or obovate, rounded at the apex, 1.5–2.5 cm. long, pale beneath; flowers large and showy, in large racemes, long-pedicellate, usually red variegated with yellow, sometimes wholly red; pods flat, broad, elastically dehiscent.—An infusion of the flowers is employed as a remedy for amenorrhea. The Kekchí name is "utsuh." *Robinia pyramidata* Mill. (Gard. Dict. ed. 8. Robinia No. 7. 1768), described from Campeche, is apparently a synonym of this species.

Caesalpinia vesicaria L. *C. bijuga* Sw.

Toxob, Yaxkixkanab (Schott). Frequent.—A small, nearly glabrous tree, armed with spines; leaflets few, broadly obovate, obcor-

date, or rounded, 1.5–3.5 cm. long; flowers yellow, in long racemes; pods somewhat swollen, succulent, 3.5–5 cm. long.—This is probably the "toxobek" reported by Cuevas (Pl. Med. 100. 1913). He states that an infusion of the pods with iron sulphate gives a permanent black dye, and that the plant has astringent properties. The powdered charcoal of the bark is a common remedy for diarrhea in children. Gaumer, in his notes accompanying one of the specimens, gives the Maya name as "ek," doubtless as a result of confusion with the logwood.

Caesalpinia yucatanensis Greenm. FMB. 2: 252. 1907. *C. exostemma* Millsp. FMB. 1: 21. 1895, not DC. *C. mexicana* Millsp. FMB. 2: 49. 1900, not Gray.

Kanpocolcum (Gaumer). Sp. *Sen del país.* Common; type from Izamal, *Gaumer 371;* also in Veracruz.—A shrub or small tree; leaflets oblong to oval, 1.5–3.5 cm. long, obtuse or rounded at the apex, glabrate; flowers large, yellow, long-pedicellate, in short or long racemes; pods broad, flat, velvety-pubescent, elastically dehiscent, covered with small elevated dark glands.

Cassia alata L.

Sp. *Flor del secreto.* Occasional.—A shrub 2–4 m. high; leaves pinnate, the leaflets numerous, oval to oblong, 6–17 cm. long, rounded at the apex, glabrate; flowers large, racemose, pale yellow; pods 15 cm. long, with 2 broad longitudinal wings.—Called "taratana" in Tabasco. An ointment made from the flowers is a current remedy for ringworm.

Cassia anisopetala Donn. Smith.

Kanchinaik (Petén). Ixpop, Petén, *Cook & Martin 193.*—A shrub or tree, armed with short recurved spines; leaflets 3–9 cm. long, obtuse or acute; flowers in long dense racemes.

Cassia bicapsularis L.

Sp. *Alcaparrillo.* Occasional.—A shrub or herb 1–3 m. high, glabrous or pubescent; leaflets 3–5 pairs, oval or obovate, obtuse or rounded at the apex; flowers pale yellow, racemose, large and showy; pods terete, 11 cm. long.—Called "cachimbo" in Tabasco.

Cassia biflora L.

Common.—A slender shrub 1–2.5 m. high; leaflets few, oval, 1–3.5 cm. long, rounded at the apex, glabrous or pubescent; flowers

large, yellow, in few-flowered racemes; pods flat, 5-11 cm. long, 4–5 mm. wide.—Specimens listed from Yucatan (Millsp. FMB. 1: 366. 1898) as *C. polyphylla* Jacq. are doubtfully distinct.

Cassia emarginata L. *C. arborescens* Mill.

Xtuab (Gaumer), *Xtuhabin* (Gaumer). Sp. *Barba de jolote* (B. H.). Common.—A shrub or tree 3–7 m. high with thick branches; leaflets few, oblong to rounded-oval, rounded at the apex, 2–13 cm. long, densely pubescent beneath; flowers yellow or orange, racemose; pods flat, thick, 14–40 cm. long, 1–1.5 cm. wide, indehiscent.

Cassia Fistula L.

Sp. *Cañafístula* (Yuc., B. H.). Sometimes planted; native of tropical Asia.—A medium-sized tree; leaflets 4–8 pairs, acutish, 7–20 cm. long, glabrous; flowers large, yellow, in lax drooping racemes 30–50 cm. long; pods woody, terete, 60 cm. long or less, 2 cm. thick.—The pulp of the fruit has purgative properties.

Cassia flavicoma HBK. *C. Chamaecrista* Millsp. FMB. 1: 298. 1896, not L. *C. tristicula* Millsp. FMB. 1: 366. 1898, not HBK.

Common.—Subgenus *Chamaecrista*. An erect pubescent annual, simple or branched; leaflets numerous, oblong, rounded or obtuse at the apex; flowers large, yellow, axillary; pods small, flat, elastically dehiscent.

Cassia flexuosa L. *C. procumbens* Millsp. FMB. 1: 366. 1898, not L.

Buulchich (Gaumer). Progreso, *Schott 290; Gaumer 23153*.—Subgenus *Chamaecrista*. A somewhat woody perennial, usually 30 cm. high or less; leaflets numerous, small, linear-oblong, pubescent or glabrate; stipules large and conspicuous; flowers large, yellow, axillary; pods small, flat, elastically dehiscent.

Cassia hirsuta L. *C. leptocarpa* var. *hirsuta* Benth.

Zalche (Gaumer). Frequent.—A coarse hirsute herb 1.5 m. high or less; leaflets 3–5 pairs, ovate to oblong-lanceolate, acute or acuminate, 4–7 cm. long; flowers yellow, in short axillary racemes; pods linear, hirsute, compressed, 12–20 cm. long, 5 mm. wide.

Cassia leiophylla Vog. *C. sericea* Millsp. FMB. 1: 299. 1896, in part, not Sw.

Sp. *Hormiguera* (Camp.). Izamal, *Millspaugh 225*.—A shrub or herb 1 m. high or less, pubescent; leaflets 2–3 pairs, broadly obovate, rounded at the apex, 3–5 cm. long; flowers large, yellow; pods compressed, 10 cm. long, 5 mm. wide.

Cassia occidentalis L.

Sp. *Bricho, Frijolillo*. A frequent weed.—Plants usually herbaceous and 1.5 m. high or less; leaflets 4–7 pairs, ovate, 2–8 cm. long, acute or acuminate, usually glabrous; flowers chiefly axillary, yellow, large and showy; fruit flat, 8–12 cm. long, 5–8 mm. wide.

Cassia Peralteana HBK. Nov. Gen. & Sp. 6: 356. 1823. *C. Liebmannii* Millsp. FMB. 1: 365. 1898, not Benth. *C. racemosa* Millsp. FMB. 1: 366. 1898, not Mill.

Habinpek (Gaumer), *Kánhabin* (Gaumer), *Xcantoplatston* (Schott), *Yaxhabin* (Gaumer). Common; endemic; type from Campeche.—A tree, reported to attain a height of 10 m.; leaflets numerous, oblong to oval, 3–6 cm. long, acute to rounded at the apex, pubescent, at least beneath; flowers large, bright yellow, in short dense racemes; fruit flat, glabrous, 1 cm. wide.

Cassia reticulata Willd.

Yaaxhabin (Gaumer). Reported from the region, and probably occurring there.—A large shrub or small tree; leaflets numerous, oblong to obovate, rounded at the apex, 5–12 cm. long; flowers large, yellow, in long racemes; pods flat, 12–18 cm. long, 1–2 cm. wide, thin.

Cassia Tagera L.

Atasta, Campeche, *Rovirosa 45*.—A small prostrate perennial, nearly glabrous; leaflets 4, cuneate-obovate, 1 cm. long or shorter; flowers small, axillary; pods short, flat.

Cassia Tora L.

Chichankanab, *Gaumer 1474*.—An erect annual, glabrous or nearly so; leaflets usually 3 pairs, obovate or rounded-obovate, rounded at the apex; flowers large, yellow, axillary; pods linear, 15–20 cm. long, 3–4 mm. wide.

Cassia undulata Benth.

Frequent.—An erect or clambering shrub; leaflets 4, oblique, lance-oblong or ovate-oblong, acuminate, 4.5–9 cm. long, nearly glabrous; flowers large, greenish yellow; pods terete.

Specimens reported as *C. bacillaris* L. f. (Millsp. FMB. 1: 20. 1895) may belong here.

Cassia uniflora Mill. Gard. Dict. ed. 8. *Cassia* No. 5. 1768. *C. ornithopoides* Lam.; *C. sericea* Sw.

Tulubayen (Gaumer), *Xtuab* (Aznar). A frequent weed; type from Campeche.—An erect herb, sericeous with fulvous or reddish hairs; leaflets few, oval or obovate, obtuse or rounded at the apex; flowers small, yellow, in short axillary racemes; pods small, short, 4-angled, constricted between the seeds.

Cassia villosa Mill. Gard. Dict. ed. 8. *Cassia* No. 4. 1768. *C. hirsuta* Millsp. FMB. 1: 365. 1898, not L. *Ormocarpum* sp. Millsp. & Loes. BJE. 36: Beibl. 80: 17. 1905.

Zalche (Gaumer). Frequent; described from Campeche.—Plants usually herbaceous and about 1 m. high, sometimes shrubby and 2 m. high, densely stellate-pubescent; leaflets 6–8, acute or acuminate; flowers yellow, in short racemes; pods turgid, 4–5 mm. wide, deeply constricted between the seeds.—Easy of recognition because of the stellate pubescence.

Delonix regia (Boj.) Raf. *Poinciana regia* Boj.

Sp. *Flamboyán.* Planted as a shade tree; native of Madagascar.—*Poinciana, flame-tree.* A medium-sized tree with large deciduous bipinnate leaves; flowers large, orange-red and scarlet.

Haematoxylum campechianum L.

Ek (Gaumer). Sp. *Palo de tinta, Palo de Campeche, Tinta. Logwood* (B. H.). Abundant in the eastern and southern part of the Peninsula, and extending into Tabasco; also in the West Indies; originally described from Campeche.—A small tree with compressed and fluted trunk, the bark grayish, the branches irregular, armed with stout spines; leaves glabrous, pinnate, the few leaflets broadly cuneate, 1–3 cm. long, with numerous parallel veins; flowers yellow, 5–6 mm. long, racemose; pods flat, thin, dehiscent.—The wood is hard and heavy, with a characteristic odor, the sapwood yellowish, the heartwood reddish brown, becoming deep red on exposure. The heartwood is the logwood of commerce, which has been exported in vast quantities. Its export was formerly the chief industry of the region, and it and mahogany were the prime cause of the British settlements along the coast, and of many years of hostility between

the British and Spanish settlements. It is stated that when Grandmont captured Campeche, he burned more than a million logs stored there. The wood was shipped to Spain early in the sixteenth century. Its export is still an important industry.

The wood contains a peculiar principle, haematoxylin or hematin, used for dyeing. It is an official drug of the U. S. Pharmacopoeia, being employed as an astringent, especially for treating dysentery and diarrhea. In Yucatan it is employed for the same purpose. The seeds are sometimes used for flavoring food.

Another species of this genus is common along the west coast of Mexico and Central America, and on the north coast of South America.

Hymenaea Courbaril L., a handsome timber tree, is called "guapinol" and "locust" in British Honduras. The Kekchí name is "pak."

Tamarindus indica L.

Pahxuhuc (Tozzer). Sp. *Tamarindo.* Planted frequently, and perhaps naturalized; native of the Old World tropics.—*Tamarind.* A large or medium-sized, unarmed tree; leaves pinnate, the leaflets numerous, oblong, 1–2 cm. long; flowers yellow, striped with red, racemose; pods brown, indehiscent, the 4–7 seeds surrounded by acidulous juicy pulp.—The flowers are produced in May and June, and the pods are ripe in March and April. The agreeably flavored pulp is used for preparing cooling beverages and conserves, and it is employed also as a laxative. The strong wood is utilized for construction purposes.

Abrus precatorius L.

Xocoak. Sp. *Peonía.* Frequent in thickets.—*Beadvine.* A slender woody vine; leaves even-pinnate, the numerous leaflets oblong, 1–1.5 cm. long, rounded at the apex, sparsely strigose; flowers purplish, racemose; pods containing 4–6 scarlet and black seeds.—The leaves and root have the flavor of licorice. The seeds are poisonous. They are very handsome and durable, and are strung to make necklaces and bracelets. The plant is rather uncommon in Mexico and Central America.

Aeschynomene americana L. *A. americana* var. *depila* Millsp. FMB. 1: 363. 1898.

Common.—A weedy annual with pinnate leaves; leaflets numerous, linear-oblong, acute; flowers small, yellow and brown-red; pods

jointed, deeply notched along the lower margin.—Var. *depila* was based on *Gaumer 955* from Izamal. It is a common form with glabrous, rather than pubescent, pods.

Aeschynomene fascicularis Schlecht. & Cham.

Cabalpich. Sp. *Pegapega.* Common.—A slender shrub about a meter high or sometimes herbaceous; leaflets numerous, glabrate, obtuse; flowers small, yellow.—According to Cuevas (Pl. Med. 20, Ilustr. *pl. 12, f. 1*), a decoction of the plant is employed as a remedy for tumors. The plant is much eaten by cattle.

Aeschynomene hispida Willd.

Apazote, Campeche, *Goldman 497.*—A large herb of wet soil with dull red and greenish flowers.

Andira inermis (Swartz) HBK. (*A. excelsa* HBK.) has been reported from Yucatan, and probably occurs in Campeche and Quintana Roo, but there is no authentic record of its existence in the region. The names reported for the tree are "yakba" (Gaumer), "yabo," and "yaba." In British Honduras it is called "iximche," "chaperno," "cabbagebark," and "cornwood."

Apoplanesia paniculata Presl.

Chulul. Common.—A tree up to 24 m. high, flowering in July and August; leaves pinnate, the leaflets numerous, oblong or oval, black-dotted, petiolulate, rounded or emarginate at the apex; flowers small, in panicled racemes, the calyx accrescent.—The Maya name signifies "bow," indicating the use of the wood for making bows, as stated in the Motul Dictionary. In Guerrero and Oaxaca this tree is called "palo de arco," a name having the same meaning. The wood is used in Yucatan for rafters.

Arachis hypogaea L.

Sp. *Cacahuate.* Cultivated commonly, and reported as escaped. Native probably of Brazil.—*Peanut.* Called "maní" in many parts of Central America. The name "cacahuate" is of Nahuatl origin, being formed directly from the name of the cacao tree.

Benthamantha Greenmanii (Millsp.) Britten & Baker f. FMB. 2: 50. 1900. *Cracca Greenmanii* Millsp. FMB. 1: 299. *pl. 13.* 1896, 1: 366. 1898. "*Cracca* aff. *glabrescens* Benth.," Loes. Verh. Bot. Ver. Brand. 65: 90. 1923.

Chicamthul, Xholac (Valdez). Sp. *Jícama de conejo.* Common; endemic in Yucatan and Campeche; type collected at Chichen Itzá, *Millspaugh 127.*—A small herb, the roots bearing fusiform tubers; leaves pinnate, with 3 or 5 leaflets, the leaflets ovate or oval, obtuse or rounded at the apex, thinly strigose; flowers creamy white, in lax racemes; pods linear, constricted between the seeds.—Valdez states that the plant is used to expel intestinal parasites.

Benthamantha mollis (HBK.) Alef. *Cracca caribaea* Millsp. FMB. 1: 22. 1895, not Benth. *C. bicolor* Millsp. FMB. 1: 366. 1898, not Micheli. *C. villosa* var. *cinerea* Millsp. FMB. 1: 366. 1898, not Kuntze. *Tephrosia cinerea* Millsp. FMB. 1: 299. 1896, in part, not Pers.

Common.—A slender shrub 1.5 m. high or less, densely silky-villous; leaflets 7–13, oval or oblong, obtuse or rounded at the apex; flowers greenish yellow, in few-flowered peduncled racemes.

Cajanus bicolor DC.

Cultivated and naturalized; probably native of tropical Asia.—*Pigeon-pea.* A shrub 1-3 m. high with 3-foliolate leaves and large yellow flowers, which are frequently tinged with red.—The plant is often grown for its edible seeds.

Calopogonium coeruleum Benth.

Collected by Johnson, without locality.—A large vine with 3-foliolate leaves and purple flowers.—The plant is common in tropical America, and probably occurs in the southern part of the Peninsula, if not elsewhere. In Gaumer's Sinonimía the names "cup" and "jícama cimarrona" are given for this species.

Canavalia maritima (Aubl.) Thou. *C. obtusifolia* Millsp. FMB. 2: 52. 1900, not DC.

Frequent on sea beaches.—A coarse herb, usually prostrate but sometimes scandent; leaves 3-foliolate, the leaflets broadly rounded or emarginate at the apex; flowers pink.—A characteristic strand plant.

Canavalia mexicana Piper. *C. ensiformis* Millsp. FMB. 1: 365. 1898, not DC.

Sp. *Haba.* Occasional.—A large herbaceous vine, glabrate; leaflets oval or ovate, obtuse; flowers pink or purplish, in long-peduncled interrupted racemes; pods broad, thick.

Centrosema Plumierii Turp. *Bradburya Plumierii* Kuntze.

Sp. *Mariposa.* Frequent.—A small vine with large, showy, purplish or whitish flowers; leaves, as in the other species, 3-foliolate, the leaflets broadly rhombic-ovate, obtuse or acute, glabrate.—Called "frijolillo" and "patito" in Tabasco.

Centrosema Schottii (Millsp.) Schum. in Just's Bot. Jahresb. 26[1]: 353. 1900. *Bradburya Schottii* Millsp. FMB. 1: 364. 1898.

Buulbech (Gaumer). Endemic; type from Nohpat, *Schott 718;* Chichankanab, *Gaumer 2062;* Izamal, *Gaumer 930;* San Anselmo, *Gaumer 2061;* Suitún, *Gaumer 23457;* without locality, *Gaumer 1662, 24162, 24121.*—A slender herbaceous vine; leaflets shallowly hastate-lobed at the base, glabrous or nearly so; flowers often 5 cm. broad, purple; pods long, linear.

Centrosema virginiana (L.) Benth. *Bradburya virginiana* Kuntze; *Clitoria mexicana* Millsp. FMB. 1: 366. 1898, not Link.

Kantsin (Gaumer). Common.—A slender herbaceous vine with purple flowers; leaflets oblong-ovate to broadly ovate, acute or obtuse, glabrate; pods linear.

The name "zapatito de la reina" is reported for this species in local publications, but I suspect that the plant to which this name is applied is rather *Clitoria Ternatea* L., an introduced plant, cultivated in tropical America for its showy blue flowers, and usually known by this vernacular name.

Bradburya pubescens (Benth.) Kuntze is reported by Millspaugh (FMB. 1: 23. 1895) on the basis of a Johnson specimen. The record is doubtful, and may relate to *Centrosema virginiana.*

Chaetocalyx vestita Standl. FMB. 8: 14. 1930.

Type from Xnocac, *Gaumer 23509;* Buena Vista Xbac, *Gaumer 1077;* San Anselmo, *Gaumer 2165;* without locality, *Gaumer 24117.*—A slender herbaceous vine; leaves 5-foliolate, the leaflets oval, 1.2–3 cm. long, rounded at each end, apiculate; flowers 12–15 mm. long; fruit linear, 7.5–11 cm. long, composed of about 10 flat joints.

Cicer arietinum L.

Sp. *Garbanzo.* Listed in Gaumer's Sinonimía, and probably cultivated. Native, perhaps, of the Mediterranean region.—*Chick-pea.* Grown extensively in some parts of Mexico for its edible seeds; an important food staple in Spain.

Crotalaria incana L.

Sacpet, Zacpet. A common weed.—*Rattlebox.* An erect branched annual, copiously pilose; leaves long-petiolate, 3-foliolate (as in the other species listed here), the leaflets rounded or broadly obovate; flowers greenish yellow, in long racemes; pods inflated, densely hairy.

Crotalaria pumila Ort. *C. pumila* var. *obcordata* Griseb.

Sp. *Tronadora.* A frequent weed.—A small branched annual, thinly appressed-pubescent; leaflets small, obovate or obovate-oblong, rounded at the apex; flowers yellow, in few-flowered racemes; pods appressed-pubescent.

Crotalaria vitellina Ker.

Chichankanab, *Gaumer 23641, 23518* in part, *23661.*—Plants large and sometimes suffrutescent, appressed-pubescent or glabrate; leaflets large, often acutish; flowers 2 cm. long, yellow; pods appressed-pubescent.—In some parts of Central America the young shoots of the Crotalarias are cooked and eaten.

Dalbergia glabra (Mill.) Standl., comb. nov. *Robinia glabra* Mill. Gard. Dict. ed. 8. *Robinia* No. 5. 1768. *D. campeachiana* Benth. Journ. Linn. Soc. 4: Suppl. 37. 1860. *Amerimnon campeachianum* Kuntze, Rev. Gen. Pl. 159. 1891. *D. cibix* Pittier, Journ. Washington Acad. Sci. 12: 59. 1922. *A. glabrum* Standl. CNH. 23: 507. 1922. *A. cibix* Standl. CNH. 23: 1666. 1926.

Cibix, Muc. Common; type from Campeche.—A scandent shrub sometimes 9 m. long; leaves pinnate, the leaflets oval or obovate, rounded or retuse at the apex, appressed-pubescent; flowers small, white, in short axillary panicles, opening in May.—The tough inner bark is used as cordage. The type of *D. campeachiana* was collected in Campeche by Linden; that of *D. cibix* at Yaxcaba, *Gaumer 721.*

Desmodium adscendens (Swartz) DC.

Reported from Cozumel Island, *Gaumer* in 1885.—Leaflets oval to orbicular, rounded at the apex, appressed-pilose beneath; flowers purple, in loose racemes; pods straight on the upper margin, deeply notched on the lower.—All the species of *Desmodium* listed here are herbs with 3-foliolate leaves, purple to whitish flowers, and jointed pods.

Desmodium frutescens (Jacq.) Schindl. *D. supinum* DC.; *Meibomia supina* Britton.

Cozumel Island, *Millspaugh 1550;* Chichankanab, *Gaumer 1396;* without locality, *Johnston.*—A slender perennial; leaflets ovate to elliptic, acute or obtuse, pale beneath, pilose; pods with numerous broad joints.—One of the common weeds of tropical America.

Desmodium molle (Vahl) DC.

San Anselmo, *Gaumer 2425;* Mérida, *Schott 885.*—A tall stout herb, densely pubescent; stipules narrow, green, persistent; pods of 2 joints, the terminal joint much larger, notched on one margin.

Desmodium procumbens (Mill.) Hitchc. *Meibomia tortuosa* Millsp. FMB. 1: 299. 1896, not Kuntze. *M. neomexicana* Millsp. FMB. 1: 367. 1898, in part, not Kuntze.

Kintah. A common weed.—A slender herb, the stems pubescent with hooked hairs; leaflets lanceolate to broadly rhombic-ovate, acutish to rounded at the apex, glabrate; pods twisted, with several joints.

Desmodium purpureum (Mill.) Fawc. & Rendle. *Meibomia neomexicana* Millsp. FMB. 1: 367. 1898, in part, not Kuntze.

Kintah. A common weed.—A tall coarse herb, densely pubescent; stipules large, green, persistent; leaflets rhombic-ovate, obtuse or acute, thick; flowers in very long racemes; pods spirally twisted.

Desmodium scorpiurus (Swartz) Desv.

Maunakle (Gaumer). Doubtless a common weed, but only two collections reported: *Gaumer 263* and *929,* from Izamal.—A low, often prostrate herb; leaflets oblong to elliptic or ovate, obtuse, appressed-pubescent; pods with several joints, these narrowly oblong, about 3 times as long as broad.—This is one of the most frequent weeds of the American tropics.

Meibomia albiflora (Salzm.) Kuntze, as reported by Millspaugh (FMB. 1: 367. 1898), is doubtful. The report is based on *Johnson 36b.* Equally dubious is the report of *M. affinis* (Schlecht.) Kuntze (FMB. 1: 22. 1895), also based on a Johnson specimen.

Diphysa carthagenensis Jacq. *D. robinioides* Millsp. FMB. 1: 367. 1898; Millsp. & Loes. BJE. 37: Beibl. 80. 17. 1905, not Benth. *D. minutifolia* Standl. CNH. 23: 479. 1922, in part, not Rose. *D. spinosa* Rydb. N. Amer. Fl. 24: 213. 1924, at least in part.

Tsutsuc (Gaumer), *Xbabalche* (Valdez). Common.—A large shrub or small tree with pinnate leaves and showy yellow flowers; leaflets oblong to oval, pale beneath, glabrous or nearly so; pods narrow, inflated and bladderlike.—Valdez reports that the plant has sudorific properties. The Maya name is recorded as "sucuc," and from British Honduras the name is reported as "stutztzuk."

It may be that more than one species is represented in the Peninsula, but all the specimens examined seem to me to be conspecific.

Erythrina americana Mill. *E. carnea* Ait.; *E. coralloides* Millsp. FMB. 1: 299. 1896, perhaps also of Moc. & Sessé. *E. Corallodendron* Millsp. FMB. 1: 367. 1898, not L.

Chacmolche, Xkolokmax, Xoyo. Sp. *Colorín, Piñón espinoso.* Frequent.—A small spiny tree with 3-foliolate leaves, red flowers, and scarlet seeds.—The seeds contain a dangerous poison whose properties are well known to the Mayas.

Erythrina rubrinervia HBK. is known in British Honduras as "sumpankle," "pito," "colorín," "chacmolche," and "tiger-wood."

Galactia striata (Jacq.) Urban. *G. multiflora* Millsp. FMB. 1: 367. 1898, not Rob. *Teramnus* sp. Millsp. & Loes. BJE. 36: Beibl. 80: 17. 1905.

Xichilax (Gaumer). Common.—An herbaceous or suffrutescent vine with 3-foliolate leaves and small purplish flowers.

Gliricidia sepium (Jacq.) Steud. *Robinia rosea* Mill. Gard. Dict. ed. 8. *Robinia* No. 4. 1768. *R. maculata* HBK. Nov. Gen. & Sp. 6: 392. 1823. *Lonchocarpus maculatus* DC. Prodr. 2: 260. 1825. *G. maculata* Steud. Nom. Bot. ed. 2. 1: 688. 1841. *G. sepium* f. *maculata* Urban, Symb. Antill. 2: 289. 1900.

Zacyab, Sacyab. Sp. *Madrecacao* (Quintana Roo, B. H.). Common.—A tree 4–10 m. high or larger, with pinnate leaves, the leaflets usually spotted beneath with purple; flowers white or pinkish, very showy.—In many regions the tree is called "madre de cacao." This name alludes to the fact that the aborigines of Mexico and Central America planted the tree for shade in cacao plantations, having found that cacao would thrive best in association with it. The plant is used in some localities for poisoning rats and mice. The wood is very durable, and is used for many purposes. The Kekchí names are "kante" and "kansim." The name "yaite" also is reported from Guatemala.

The type of *Robinia maculata* was collected in Campeche; that of *R. rosea* in Campeche by Houstoun.

Harpalyce formosa DC.

Balche-ceh. Between Ticul and Tabi, *Seler 3902;* Pisté, *Seler 3988.*—A shrub with pinnate leaves and large rose-colored flowers; leaflets elliptic, obtuse, puberulent and glandular beneath; calyx 2-lipped.

Indigofera mucronata Spreng. *Cracca cinerea* Millsp. FMB. 1: 299. 1896, in part, not Kuntze.

Sp. *Añilillo.* A frequent weed.—A decumbent herb with pinnate leaves and small, dull red, racemose flowers; leaflets few, elliptic, rounded at the apex, grayish-strigose; pods short, slender, 4-angled, reflexed.

Indigofera suffruticosa Mill. *I. Anil* L.

Choh. Sp. *Añil.* A common weed.—*Indigo.* A stiff grayish shrub 1–2.5 m. high with small greenish flowers; leaflets oblong-elliptic, obtuse, densely grayish-strigose; pods short, obtusely 4-angled, curved.—Indigo formerly was cultivated extensively in Yucatan, and was exported as late as 1885, but it is no longer grown. Its use as a dye plant was known to the early inhabitants of Mexico. In Yucatan the plant is reported in use in domestic medicine as a tonic and as a remedy for fevers, abscesses, and epilepsy. The Maya name is applied to both the plant and its product.

Lens esculenta Moench.

Sp. *Lenteja.* Listed in Gaumer's Sinonimía, and perhaps grown for its edible seeds. Native of southeastern Europe.—*Lentil.*

Lonchocarpus hondurensis Benth.

Kancabtsonot, *Gaumer 23887, 23851;* without locality, *Gaumer 24387;* Buena Vista Xbac, *Gaumer 1042.*—A tree 6–8 m. high; leaflets about 9, elliptic, obtuse, nearly glabrous; flowers purplish, in short panicled racemes; pods flat, 1-seeded, winged on the margins.—Called "gusavo" in Tabasco, and "dogwood" in British Honduras.

Lonchocarpus longistylus Pittier, CNH. 20: 62. *f. 10.* 1917. *L. violaceus* Millsp. FMB. 1: 22. 1895, not HBK.

Balche, Zaayab (Gaumer). Endemic; type from Izamal, *Gaumer 904;* Mucuyché, *Schott 691;* Chichen Itzá, *Thompson 1;* Izamal, *Gaumer 23180, 23441;* without locality, *Gaumer 24108, 24429.*—A tree 18 m. high; leaflets about 15, elliptic or ovate, acute, glabrous; flowers blue-purple, in lax racemes, borne in September and October. —This is one of the most important and interesting trees of the Peninsula. By the ancient Mayas the bark was soaked in water with honey and fermented to produce an intoxicating drink called "balche." With this the Mayas were accustomed to intoxicate themselves at religious and other celebrations, and it was also one of the offerings made to the gods. The beverage is still made and used, but sirup is usually employed in place of honey. The Spanish name for the drink is "pitarrilla."

Balche is made in Chiapas and other regions where this species is not known to grow, hence it is probable that various species of *Lonchocarpus* are used for preparing the beverage.

It is probable that the oldest name for this tree is *Robinia latifolia* Mill. (Gard. Dict. ed. 8. *Robinia* No. 9. 1768). The type was collected in Campeche by Houstoun. The pods of *L. longistylus* have not been collected, but if they are found to agree with Miller's description, there will be little doubt as to the application of his name.

Lonchocarpus rugosus Benth. Journ. Linn. Soc. 4: Suppl. 92. 1860.

Kantzin. Black cabbagebark (B. H.). Type collected in Campeche by Houstoun. Izamal, *Gaumer 996;* without locality, *Gaumer 24195, 24266.* Widely distributed in Mexico and Central America.—A tree 18 m. high with dull red flowers; leaflets about 13, oblong-elliptic, obtuse, pubescent or glabrate, reticulate-veined; pods flat, thin, brown-sericeous.

Lonchocarpus yucatanensis Pittier, CNH. 20: 74. *f. 24.* 1917. *Amerimnon Brownei* Millsp. FMB. 1: 363. 1898, not Jacq.

Balchechi (Gaumer). Endemic; type from Progreso, *Gaumer 1146;* Izamal, *Gaumer 728;* Chichankanab, *Gaumer 2202;* without locality, *Gaumer 24044.*—A tree 18 m. high with red-purple flowers.

Medicago sativa L., alfalfa, is listed in Gaumer's Sinonimía, and may have been planted at some time in Yucatan.

Mucuna Andreana Micheli.

Mérida, *Schott 155* in part (fruit only).—A large vine; pods about 2-seeded, thick and broad, densely pubescent.—Since the specimen consists of a single pod, the determination is not altogether certain.

Mucuna pruriens (L.) DC.

Chiican. Sp. *Picapica.* Common.—*Cow-itch, cowhage.* A large herbaceous vine with 3-foliolate leaves; flowers racemose, large, dull dark purplish; pods covered with long stiff brownish hairs.—The plant is a close relative of the velvet-bean grown in some regions as a fodder or manure plant. The hairs of the pods are detached easily and are often blown about by the wind. They cause intense irritation and itching when they penetrate the skin, as they do readily. Gann reports that the southern Mayas administer these hairs in atol or other beverages as a remedy for intestinal parasites in children. Similar use is made of the plant in many other regions.

Myroxylon Pereirae Klotzsch. *M. peruiferum* Millsp. FMB. 1: 368. 1898, not L.

Nabá, Nabal. Sp. *Bálsamo. Balsam* (B. H.). Apparently of frequent occurrence.—*Balsam of Peru.* A large tree with smooth pale bark; leaves pinnate, with 7–11 translucent-dotted leaflets; flowers whitish.—The wood is close-grained and nearly of the color of mahogany, but redder. It takes a good polish, and is suitable for fine cabinetwork. The balsam of Peru, obtained from incisions in the trunk and from the fruit, is used in medicine and in the preparation of the chrism used in services of the church. It is produced almost wholly in Salvador, from which country it is an important article of export. The balsam is an official drug of the U. S. Pharmacopoeia, having stomachic and expectorant properties. According to Cuevas (Pl. Med. 15, Ilustr. *pl. 5, f. 1.* 1913), it is employed in Yucatan in the treatment of wounds, and as a remedy for dysmenorrhea and amenorrhea. The Motul Dictionary gives "yitz naba" as the name of the balsam.

Nissolia fruticosa Jacq.

Kanduul, Kanauul. Common.—A woody vine with pinnate leaves and small greenish flowers, reported to climb to a height of 9 m.; leaflets broadly elliptic, obtuse, puberulent; flowers in long dense racemes; pods jointed, the terminal joint with a broad thick spatulate terminal wing.—Some of the Yucatan specimens have been determined as *N. Nelsoni* Rose, a name probably to be reduced to synonymy under this species.

Pachyrhizus erosus (L.) Urban. *"Dolichos tuberosum"* Cuevas, Pl. Med. 34, Ilustr. *pl. 22, f. 3.* 1913.

Chicam, Mehenchicam (Gaumer). Sp. *Jícama, Jícama dulce.* Cultivated and perhaps wild.—A large coarse vine; leaves 3-foliolate, the large broad leaflets angulate or shallowly lobed; flowers bluish purple, in long racemes.—The plant is grown commonly in Mexico and Central America for its roots, which resemble turnips and are of about the same size. They are eaten raw, and are crisp and watery, rather sweet, and of agreeable flavor.

The Maya name *chicam* is evidently cognate with the Mexican *jícama,* which is derived from the Nahuatl. It has been suggested, therefore, that the plant was introduced into Yucatan from Anahuac, which is quite probable.

Pachyrhizus tuberosus (Lam.) Spreng. is probably only a form of *P. erosus.* The former name is given to the cultivated plant, which differs slightly from the usual wild form.

Pachyrhizus palmatilobus (Moc. & Sessé) B. & H. *Cacara erosa* Millsp. FMB. 1: 300. 1896, not Kuntze.

Xnucchicam (Gaumer), *Chicam.* Sp. *Jícama grande, Jícama.* Apparently common.—Similar to *P. erosus,* but the leaflets deeply lobed.—This seems to be a wild plant, but its large tubers are eaten like those of *P. erosus.*

Parosela Gaumeri Standl. FMB. 8: 14. 1930.

Type from Chichankanab, *Gaumer 1457;* San Anselmo, *Gaumer 1727;* Pocoboch, *Gaumer 2408.*—A slender shrub, glabrous or nearly so; leaflets about 7, oblong or cuneate-oblong, 4–7 mm. long, broadly rounded at the apex; flowers sessile, the spikes 1–1.5 cm. long; calyx glabrous; petals ochroleucous.

Parosela humilis (Mill.) Rydb. *P. domingensis* Millsp. FMB. 1: 21. 1895, 1: 299. 1896, 1: 368. 1898, as to specimens cited, not *Dalea domingensis* DC.

Frequent.—A stiff shrub about 1 m. high with gland-dotted pinnate leaves and small, ochroleucous or purplish flowers; leaflets few, oblong to obovate, pubescent; racemes short, dense; calyx teeth long and filiform.

Parosela nutans (Cav.) Rose. *Dalea diffusa* Millsp. FMB. 1: 366. 1898, not Moric.

Sp. *Escoba colorada.* Common; growing in old fields and in waste ground.—A slender glabrous bushy annual with small purple flow-

ers; leaflets numerous, oblong, glabrous, dotted with large glands; flowers in long slender racemes.

Phaseolus elegans Piper.

Kantzin. Collected at Izamal, Chichankanab, Kancabtsonot, San Anselmo, Sisal, Sayi.—A slender vine with 3-foliolate leaves; leaflets lance-oblong to rhombic-ovate, glabrous or nearly so, obtuse or acute; flowers large, purple, in few-flowered racemes; pods long, linear.

Phaseolus lunatus L.

Sp. *Frijol.* Common wild; also cultivated.—*Lima bean.* A large herbaceous vine; leaflets deltoid or rhombic, obtuse to acuminate, glabrate; flowers greenish white or purplish, in long racemes; pods broad, the seeds compressed.—The wild form, with small pods and seeds, is a common plant of tropical America. It may be one of the forms of the lima bean which is known in Yucatan under the name "ib" or "ip." This is described as flat, broader than the common "frijoles," and either white or red.

Phaseolus scolecocarpus Piper, CNH. 22: 681. 1926. *P. dysophyllus* Millsp. FMB. 1: 368. 1898, not Benth.

Endemic; type from Izamal, *Gaumer 924;* Buena Vista Xbac, *Gaumer* in 1899; without locality, *Gaumer 1670;* Izamal, *Gaumer 923.*—An herbaceous vine with pilose stems; leaflets broadly rhombic to ovate-oblong, sometimes with short rounded basal lobes, densely pilose; flowers in long interrupted racemes; pods narrowly linear.

Phaseolus speciosus HBK.

Near Champotón, Campeche, *Collins 40.*—An herbaceous vine with large showy pink flowers.

Phaseolus vulgaris L.

Buul, Bul. Sp. *Frijol.* Cultivated. Native of America, but scarcely known in a wild state.—*Bean.* Beans or "frijoles" are, next to maize, the most important food staple of Yucatan, as in most parts of Mexico and Central America, among all classes of society. They are grown in large quantities in the Peninsula, and sometimes are exported.

Beans have been in cultivation in this region for many centuries, and numerous horticultural varieties have developed. The scandent varieties are little grown in tropical America. The word "buul" applies to both the plant and its seeds, especially to the common "frijol amarillo," a pink or brown-seeded form. Gaumer lists also the "xcholibuul" or "frijol negro," a small black bean, which is common throughout Central America. The "xpelon," hispanicized as "espelón," is the same or a similar variety. There are many local ways of preparing "frijoles" but the current method is by boiling, then frying and mashing them. There is reported from Yucatan "buliuah," a kind of tortilla of maize and "frijoles." Domínguez reports the names "tzamá" and "xcolibul" for varieties of *Phaseolus vulgaris*.

The following names are reported for this species in the Guatemalan dialects: "Chicun," Ixil; "Chicong," Ixil; "Ubal" and "Kuyenk," Mame; "Pilin," Pokonchí, a small variety; "Kin'ak," Quiché; "Tut," Chuje; "Chenek," Tzental; "Ch'ux," Pokonchí, a small red variety.

Phaseolus adenanthus Mey. (as *P. truxillensis* HBK.) is reported by Millspaugh (FMB. 1: 23. 1895), the record based on a Johnson specimen. The report needs verification, but the species may well occur in the Peninsula.

Piscidia communis (Blake) Harms. *Ichthyomethia piscipula* Millsp. FMB. 1: 22. 1895, not Hitchc. *P. Erythrina* Millsp. FMB. 1: 368. 1898, not L. *I. communis* Blake.

Habin, Habim (Yuc., B. H.), *Habi, Haabi. Dogwood* (B. H.). Common in dry forests.—A tree, often 18 m. high, with a trunk 40 cm. in diameter; leaves pinnate, the leaflets petiolulate, oblong to oval, acute to rounded at the apex, thick, minutely appressed-pubescent beneath; flowers large, pink; pods with 4 broad longitudinal wings.—Flowering in March, when leafless. The hard and heavy wood, which is very durable under ground or in water, is much used locally for purposes in which strength and durability are important, and in cabinetwork. An extract of the root bark is used commonly in the Peninsula in medicine. Gaumer gives the following notes regarding it: "Local anesthetic, analgesic, antispasmodic, anti-inebriate, and sudorific. The extract, in doses of 20 drops per hour, diminishes sensibility, produces profound perspiration, and augments salivation and transpiration. In doses of 5–10 drops per hour it acts as a sedative, tranquilizing the nerves; alleviating pain;

and inducing an inclination toward quiet sleep, without the resultant dryness of the mouth so common to other soporifics. It mitigates the cough and hectic fever of phthisis. Piscidia extract is very effective in the treatment of abdominal pains during gestation, and in dysmenorrhea. It promptly relieves the pain accompanying fractures and operations, also toothache and headache."

The Piscidias are employed in some regions for catching fish. The crushed bark is thrown into pools or quiet streams. Soon afterward the fish, in a stupefied state, float upon the surface, and may be secured easily.

The Motul Dictionary defines "tuncuy" as the wood of the "habim." The Kakchiquel name of the tree is reported as "anipak"; the Kekchí name as "tiaxab."

Pisum sativum L.

Sp. *Chícharo*. Listed in Gaumer's Sinonimía, and perhaps planted occasionally. Native of the Old World.—*Pea*.

Platymiscium yucatanum Standl. CNH. 23: 510. 1922. *Pterocarpus Draco* Millsp. FMB. 1: 368. 1898, not L.

Subinche, Zubinche. Sp. *Granadillo*. Endemic; type from Izamal, *Gaumer 377;* Kancabtsonot, *Gaumer 23566;* Chichankanab, *Gaumer 23643;* without locality, *Gaumer 24131, 24323*.—A deciduous tree about 25 m. high with yellow flowers; leaves pinnate, the leaflets long-petiolulate, glabrous, lance-oblong to ovate, obtuse-acuminate; racemes fascicled on old wood.—The dark gray or nearly black wood is very hard and takes a high polish. It is much used for the axles of carts.

It is probable that *Pterocarpus officinalis* Jacq. occurs in the southern part of the Peninsula, but no conclusive evidence of its occurrence has been found.

Rhynchosia minima (L.) DC.

Mehenibbech (Gaumer), *Ibcho* (Gaumer). Common.—A slender herbaceous vine with 3-foliolate leaves and small yellow flowers; leaflets broadly rhombic or rounded, obtuse or acute, gland-dotted and puberulent; racemes slender, few-flowered; pods small, short, compressed.

Rhynchosia pyramidalis (Lam.) Urban. *R. phaseoloides* DC.

Without locality, *Johnson, Gaumer 24332;* Izamal, *Gaumer 498a*.—A large herbaceous pubescent vine; leaflets rhombic or deltoid,

acuminate to obtuse, gland-dotted; flowers greenish yellow, in long racemes; pods compressed.—The handsome, scarlet and black seeds in some regions are strung to form necklaces.

Rhynchosia reticulata (Swartz) DC. *Dolicholus reticulatus* Millsp. FMB. 2: 53. 1900.

Kancabtsonot, *Gaumer 23605;* Chichankanab, *Gaumer 1397;* without locality, *Gaumer 24122.*—A stout herbaceous vine with densely pubescent, sharply angled stems; leaflets oblong to broadly ovate, acute or acuminate, densely pubescent; racemes long, interrupted; calyx lobes large and broad, equaling the corolla.

Sesbania Emerus (Aubl.) Urban. *?S. macrocarpa* Muhl.

Sp. *Bequilla.* Izamal, *Gaumer 907;* Sacnicte, *Gaumer 23425.*—A tall slender herb 1–4 m. high, growing in wet soil or in water; leaflets numerous, oblong, rounded at the apex, glabrous, dark purplish beneath; flowers pale yellow, in few-flowered racemes; pods long and slender, linear, terete.

Sesbania grandiflora (L.) Pers. *Agati grandiflora* Desv.

Sp. *Pico de flamenco.* Cultivated and said to be naturalized; native of the Old World tropics.—A small tree with showy, usually white but sometimes pink or red flowers 6–8 cm. long.

Sophora tomentosa L.

Reported from Mugeres Island, *Gaumer* in 1886; probably to be found elsewhere along the coast.—A shrub of seashores with sericeous pinnate leaves and yellowish white flowers.—The Maya name "salche" is listed for the plant, but upon whose authority, I do not know.

Stylosanthes hamata (L.) Taub. *S. biflora* Millsp. FMB. 1: 369. 1898, not BSP.

Chichibe. Apparently common.—A small herb with 3-foliolate leaves and small yellow flowers; leaflets lance-linear to lanceolate, acuminate, glabrate; calyx hispid.—This species is not represented by specimens from other parts of Mexico. Some of the Yucatan material has been determined as *S. guyanensis* (Aubl.) Sw.

Tephrosia cinerea (L.) Pers. *Cracca cinerea* Morong; *C. decumbens* Kuntze; *C. littoralis* Rydb.

Zulche, Sulche. Occasional along the coast.—A low weedy herb with tough stems, pinnate leaves, and small purplish flowers; leaflets cuneate-oblanceolate; pods flat, broadly linear.

Tephrosia cathartica (Sessé & Moc.) Urban (*Cracca cathartica* Rydb.) is reported from Yucatan by Rydberg (N. Amer. Fl. 24: 180. 1923). The plant was collected by Gaumer on Ruatán Island, Honduras, but I have seen no Yucatan specimens.

Vicia Faba L.

Sp. *Haba.* Listed in Gaumer's Sinonimía, and probably cultivated occasionally. Perhaps native of northern Africa and southwestern Asia.—An annual plant, grown extensively in the Old World for its edible seeds, but seldom planted in Central America.

OXALIDACEAE. Wood-sorrel Family

Oxalis latifolia HBK. Nov. Gen. & Sp. 5: 237. 1822. *Ionoxalis latifolia* Rose, CNH. 10: 113. 1906.

Yala-elel (Cuevas), *Yalelel* (Cuevas), *Elel* (Pérez), *Zutskeymil* (Gaumer), *Zutskeyem* (Cuevas). Sp. *Acederilla.* Apparently frequent. Type from Campeche.—An acaulescent plant with rose-purple flowers.—The leaves have an acid flavor. The plant is said to have astringent properties, and is used locally in treating inflammation of the mouth.

In the Motul Dictionary there is listed the word "ixtamancan," with the definition, "yerva acedera, o casi ella," which would indicate a plant with leaves like those of *Oxalis.*

Oxalis yucatanensis (Rose) Standl. CNH. 23: 518. 1923. *Lotoxalis occidentalis* Rose, CNH. 10: 115. 1906, not *O. occidentalis* Knuth, 1915. *L. yucatanensis* Rose, CNH. 10: 116. 1906. *O. Berlandieri* Millsp. FMB. 1: 300. 1896, 1: 369. 1898, 2: 54. 1900; Millsp. & Loes. BJE. 36: Beibl. 80: 18. 1905, not Torr.

Yala-elel (Gaumer). Sp. *Agritos.* Frequent.—An erect branching herb with 3-foliolate leaves and small yellow flowers.—The type of *Lotoxalis yucatanensis* is *Gaumer 715* from Yucatan.

ERYTHROXYLACEAE. Coca Family

Erythroxylon brevipes DC.

Without locality, *Gaumer 24220, 24338, 23972, 24288;* Chichankanab, *Gaumer 2287;* Tsilám, *Gaumer 1249;* Izamal, *Gaumer 754.*—A

stiff shrub or small tree about 3 m. high; leaves obovate, glabrous, 2.5 cm. long or less, rounded at the apex; flowers small, white, fascicled in the leaf axils; fruit a small red drupe.—In Mexico this species is known only from Yucatan.

To the genus belongs the coca plant, *E. coca* Lam., from which the drug cocaine is obtained.

TROPAEOLACEAE. Nasturtium Family

Tropaeolum majus L.

Sp. *Mastuerzo, Capuchina.* Cultivated for ornament; native of South America.—*Nasturtium.*

GERANIACEAE. Cranesbill Family

Pelargonium graveolens L'Hér.

Sp. *Geranio de olor.* Cultivated for ornament; native of South Africa.—*Rose geranium.*

Pelargonium zonale (L.) Ait.

Sp. *Geranio.* Cultivated for ornament; native of South Africa.—*Geranium.* Probably other species than the two here listed are grown in the region.

ZYGOPHYLLACEAE. Lignum-vitae Family

Guaiacum sanctum L.

Zoon (Gaumer), *Zon.* Sp. *Guayacán, Palo santo.* Frequent.—*Lignum-vitae.* A small tree; leaves pinnate, with 4–10 glabrous entire leaflets; flowers blue or purple; fruit an angled capsule.—The wood is very hard and dense, light yellow, becoming green on exposure. It is employed for railroad ties and for general construction purposes. By the ancient Mayas dishes, cups, and other vessels were made from the wood, and because of its strength and flexibility it was one of their favorite woods, and perhaps the principal one, for fashioning bows.

The extract of the wood has stimulant and diaphoretic properties, and is official in the U. S. Pharmacopoeia. Introduced into Europe about 1508 by the Spaniards, the wood soon gained great fame as a remedy for syphilis, for which it had been used by the American natives. The wood is still employed in medicine in Yucatan. It was long esteemed highly by American and European physi-

cians for treating syphilitic affections, gout, rheumatism, scrofula, and cutaneous affections, but it is now believed to have no distinct influence upon such diseases.

Kallstroemia maxima (L.) Torr. & Gray. *Tribulus maximus* L.

Xichilak (Gaumer). A common weed.—A prostrate annual, the leaves with 3 or 4 pairs of narrow pubescent leaflets; flowers axillary, small, yellow; fruit composed of 10 bony unarmed nutlets.

Tribulus cistoides L. *T. terrestris* var. *cistoides* Oliver. *T. alacranensis* Millsp. FMB. 2: 54. 1900. *T. terrestris* Dondé, Apuntes 41. 1907, not L. *T. trijugatus* Dondé, Apuntes 42. 1907, not Nutt.

Chanxnuuc (Gaumer), *Chanixnuc* (Motul Dict.), *Chanxnuc* (Aznar). Sp. *Abrojo*. A common weed, often growing on seashores. —A prostrate herb; leaves with 4–8 pairs of narrow silky leaflets; flowers large, axillary, long-pediceled, yellow; fruit of 5 bony carpels, these armed with stout spines.—The plant is said to be eaten by stock. The stiff hard spines can penetrate shoes almost as readily as tacks. A decoction of the plant is employed in fomentations for relieving rheumatism, and the plant is reputed to have tonic, stimulant, and aperient properties.

The type of *T. alacranensis* is *Millspaugh 1766* from Allison Island, Alacrán Shoals. It is a form with petals only 1–1.5 cm. long, those of the typical form being 1.5–2.5 cm. long. Since every gradation in size is found between the two extremes, it seems inadvisable to consider *T. alacranensis* more than, at most, a variety of *T. cistoides*.

The name "chamtoloc" the Motul Dictionary defines as "especie de abrojos; danse en las hojas y tienen espinas." The name may relate to *Tribulus*, or perhaps to some plant of another family.

RUTACEAE. Rue Family

Amyris sylvatica Jacq.

Chichankanab, *Gaumer 1379*.—A shrub or small tree with alternate persistent glabrous 3-foliolate leaves; leaflets ovate, acute, nearly entire; flowers small, green, in terminal panicles; fruit a black or reddish drupe.

Casimiroa tetrameria Millsp. FMB. 1: 401. 1898.

Hyuy, Yuy (Gaumer). Common; type from Xcholac, *Gaumer 1006;* widely distributed in Mexico and Central America.—A tree 9–18 m. high; leaves alternate, with usually 5, entire, densely pubes-

cent, acute leaflets; flowers small, greenish, in lateral panicles.—The fruit is edible, but no information is available regarding its use in Yucatan. It is green or yellow, and resembles a small apple. The tree is called "matasano" in Central America.

Casimiroa edulis Llave & Lex. has been reported from Campeche, with the name "zapote blanco." This species may occur in the Yucatan Peninsula. The Pokonchí (Guatemala) name for *Casimiroa* is reported as "ahache."

Citrus aurantifolia (Christm.) Swingle. *C. Limetta* Millsp. FMB. 1: 25. 1895, 1: 301. 1896, not Risso. *C. Limonum* Cuevas, Pl. Med. 60, Ilustr. *pl. 33, f. 1.* 1913, not L.

Sp. *Lima agria* (Gaumer), *Limoncillo* (Millspaugh), *Limón* (Cuevas). Cultivated for its fruit, and probably naturalized. Native, like the other *Citrus* species, of the Old World tropics.—*Lime.* The lime is much used in Middle America for seasoning food and for preparing cooling beverages. It is usually called "limón," a name more properly applied to the lemon. Cuevas reports that a decoction of the root is administered as a remedy for gonorrhea.

Citrus Aurantium L. *C. vulgaris* Risso.

Zutspakal. Sp. *Naranja agria, Cajera.* Planted and probably escaped from cultivation.—*Sour* or *Seville orange.* The fruit is too sour and bitter for eating, but the juice is sometimes used for flavoring food, like that of the lime. The decoction of the leaves and flowers is used in local medicine, especially as a tonic for loss of appetite, and antispasmodic properties are attributed to it. The Maya name "sutup" has been reported for the sour orange.

Citrus limetta Risso.

Sp. *Limón dulce.* Sometimes planted.—*Sweet lime.* This is a favorite fruit in Central America, although not likely to be esteemed very highly by the foreigner. It resembles a lime, but is as large as a lemon, and full of juice which suggests sweetened water.

Citrus Limonia Osbeck. *C. Limonum* Risso.

Sp. *Limón real, Limón agria.* Planted.—*Lemon.* The lemon is seldom grown in Central America, its place being filled by the lime.

Citrus maxima (Burm.) Merr. *C. grandis* Osbeck; *C. decumana* L.

Sp. *Toronja agria.* Reported by Gaumer as cultivated.—*Grapefruit, pomelo.* This fruit is little grown in Central America, being too sour for the tropical palate, which esteems fruits according to their degree of sweetness.

Citrus medica L.

Sp. *Cidra.—Citron.* Grown generally in tropical America for its large fruits, used in the preparation of delicious *dulces.* The current name in Central America is "toronja."

Citrus nobilis Lour. var. **deliciosa** (Ten.) Swingle.

Sp. *Mandarina.* Reported by Gaumer as planted in Yucatan.—*Mandarin orange.* Seldom grown in Central America.

Citrus sinensis Osbeck. *C. Aurantium* Millsp. FMB. 1: 25. 1895, 1: 301. 1896, not L.

Pakal, Chuhucpakal (Gaumer), *Pakaal.* Sp. *Naranja, Naranja dulce, Naranja de China.* Grown commonly.—*Orange, sweet orange.* The orange is one of the favorite fruits of tropical America, to which it was introduced immediately after the discovery. Gaumer reports the navel orange ("naranja de ombligo") as grown in Yucatan. Gann states that an infusion of orange leaves is administered by the southern Mayas as a sudorific.

Citrus sinensis is probably only a variety of *C. Aurantium,* but the specific name is maintained here as a matter of convenience.

Esenbeckia pentaphylla (Macfad.) Griseb.

Yaaxhokob (Gaumer). Izamal and Cozumel Island.—A tree, sometimes 15 m. high; leaves alternate, long-petioled, digitately 3–5-foliolate; leaflets oblong to elliptic, obtuse or rounded at the apex, entire, glabrous; flowers small, green, in large terminal panicles; fruit a large tuberculate capsule.—Known in Mexico only from Yucatan.

Fortunella margarita (Lour.) Swingle.

Sp. *Naranjito, Kumkat.* Reported by Gaumer as planted in Yucatan. Native of Asia.—*Kumquat.*

Murraea exotica L. *Chalcas exotica* Millsp.

Sp. *Limonaria.* Planted for ornament; native of Asia.—A shrub or small tree; leaves pinnate, with 3–9 entire obovate glabrous obtuse leaflets; flowers white, fragrant; fruit a red berry.

Pilocarpus racemosus Vahl. *P. longipes* Rose.

Without locality, *Gaumer 24399*.—A glabrous shrub or small tree 5 m. high or less; leaves pinnate, with 1–5 oblong to elliptic, obtuse or acute, entire, glabrous leaflets; flowers in long racemes; fruit of usually 1 or 2 rugose carpels.

Ruta chalapensis L. *R. graveolens* Millsp. FMB. 1: 301. 1896, not L.

Sp. *Ruda*. Cultivated for its medicinal properties. Native of the Old World.—*Rue*. A glabrous glaucous aromatic perennial herb; leaves bipinnate, the leaflets numerous, narrowly oblong, obtuse; flowers yellow.—This plant is common in tropical American gardens. It is reported that it does not flower in Yucatan, and the same is true in some other regions of Middle America. An infusion of rue is administered as an emmenagogue and to accelerate parturition. Gann reports that the leaves are applied externally to remedy convulsions in children, or for the relief of almost any nervous complaint in adults.

Triphasia trifolia (Burm.) P. Wils.

Planted for ornament; native of the Old World.—A spiny shrub; leaves mostly 3-foliolate, the leaflets crenate, obtuse; flowers white; fruit a globose red berry.

Zanthoxylum caribaeum Lam.

Sinanche (Schott). Progreso, *Gaumer 2300*; Calotmul, *Gaumer 1310;* Mérida, *Schott 825;* also in Petén.—A prickly tree 5–20 m. high with bitter bark; leaves pinnate, the leaflets 7–13, crenate, acute; fruit of small woody follicles.—Cuevas (Pl. Med. 89, Ilustr. *pl. 29, f. 3*. 1913) reports a tree under the name "sinanche," and although his illustration does not suggest a plant of this genus, his description answers well enough. He states that a decoction of the ill-scented leaves is used in fomentations to relieve the pain of rheumatism. The Maya name signifies "scorpion-tree," perhaps an allusion to the odor, or to the fact that when the leaves are chewed there is felt in the mouth a prickly sensation, like the biting of many ants.

Zanthoxylum Fagara (L.) Sarg. *Z. Pterota* HBK.

Tancazche (Gaumer), *Tamcazche* (Motul Dict.), *Xic-che* (Millspaugh). Sp. *Palo mulato* (Gaumer). Probably common.—A prickly shrub or small tree; leaflets 5–13, small, crenate, obtuse, the rachis

winged; flowers green, in short lateral spikes; wood yellow.—The Motul Dictionary states that the tree cures any disease. The same work gives "vole" as one of the names of the tree. Gann states that crosses of "tancasche" bark are worn by nearly all the Indian children in the southern part of the Peninsula as a charm, and as a sovereign remedy for flatulence.

Zanthoxylum trichilioides Standl. FMB. 8: 16. 1930.

Type, *Gaumer 24014*, without definite locality; without locality, *Gaumer 24339, 24005*.—Branchlets unarmed; leaflets 9–13, oblong or lance-oblong, 3.5–8 cm. long, acuminate, subentire, finely stellate-pubescent at first but soon glabrate; petals 5, 2 mm. long; follicle 1, stellate-pubescent, 3 mm. long.

MELIACEAE. Chinaberry Family

Cedrela mexicana M. Roem. *C. Glaziovii* C. DC.; *C. odorata* Millsp. FMB. 1: 26. 1895, not L. *C. yucatana* Blake, Proc. Biol. Soc. Washington 33: 110. 1920.

Kulche (Gaumer; variously reported as "kuche," "cuche," and "kuiche"). Sp. *Cedro, Cedro colorado. Cedar* (B. H.). One of the common trees of the Peninsula.—*Spanish cedar.* A large deciduous tree with pinnate leaves, the leaflets 6–8 pairs, entire, long-acuminate, glabrous or nearly so; flowers small, greenish, in large panicles; fruit a 5-valved woody capsule.—The wood is light, coarse, and soft, with a distinctive odor. Spanish cedar is well known in the United States, because it is the wood from which cigar boxes are made. The wood is valued locally for furniture, doors, rafters, sugar casks, and general construction purposes. It is especially valuable because of the fact that it is little bothered by the insects which in the tropics are so destructive to woodwork. In the southern part of the Peninsula large canoes are made from cedar trunks, and paddles also are fashioned from the same wood. Some Spanish cedar wood is exported from Quintana Roo, and doubtless from other parts of the Peninsula.

The bitter bark is employed locally as a febrifuge. The gum obtained from the trunk is used in treating bronchitis, and an infusion of the leaves is used as a mouth wash, to relieve toothache.

The type of *C. yucatana* was collected at Mérida, *Schott 199*.

Melia Azedarach L. *M. sempervirens* Sw.

Sp. *Paraíso, Paraíso morado.* Planted commonly for ornament;

native of the Old World.—*Chinaberry.* A small tree with bipinnate leaves; flowers pink or lilac, panicled, sweet-scented.

Swietenia macrophylla King. *S. Mahagoni* Dondé, Apuntes 80. 1907, not Jacq.

Punab (Pérez). Sp. *Caoba, Caobo* (name of Haitian origin). *Mahogany* (B. H.). Common in the eastern part of the Peninsula and probably in Campeche.—*Honduras mahogany.* A large tree with pinnate leaves; leaflets 3–5 pairs, 6–18 cm. long, elliptic to oblong; flowers small, whitish, panicled; fruit an ovoid woody capsule 15 cm. long, containing numerous winged seeds.—Mahogany is exported from Quintana Roo, but little information is available concerning its abundance and distribution. Canoes are sometimes made from the logs. This well-known wood is highly esteemed locally as well as in foreign countries, and the mahogany of the region is considered to be of superior quality. *Swietenia macrophylla* ranges from Chiapas and Tabasco southward to Panama.

One other species is known from Mexico and Central America, growing along the Pacific slope; another grows in Venezuela, one in Peru, and *S. Mahagoni* occurs in the West Indies.

Trichilia arborea C. DC. *T. terminalis* Millsp. FMB. 1: 26. 1895, not Jacq.

Chobenche. Common.—A tree 18 m. high; leaves pinnate, the 9–11 leaflets ovate, acuminate to obtuse, pubescent or finally glabrate; inflorescence subterminal, dense, many-flowered.—The bark is utilized as an emetic. The juice of the leaves is rubbed on the limbs to relieve convulsions.

Trichilia hirta L. *T. spondioides* Jacq.

Kulimziz (Gaumer; reported also as "xkulinsis"). Sp. *Cabo de hacha* (Gaumer). Common in dry forests; flowering in May and June.—A deciduous tree 8–12 m. high; leaflets 9–21, lanceolate to ovate, pubescent; flowers greenish, in small axillary panicles; fruit a capsule, the seeds with a red aril.—The wood is compact and yellowish or brownish.

Trichilia minutiflora Standl.

Xpukusikil (B. H.). Uaxactún, Petén, *Cook & Martin 95.* Also in British Honduras.—A tree with lance-oblong hairy leaves; flowers minute, in small axillary panicles.

Trichilia cuneata Radlk. is called "ich-bahach" in British Honduras, and for an undetermined species the name "sisím" is recorded.

SIMARUBACEAE. Simaruba Family

Alvaradoa amorphoides Liebm.

Belzinic-che (Gaumer), *Beezinic-che* (Cuevas), *Suetsinic-che* (Schott), *Besinic-che* (Petén). Sp. *Palo de hormigas*. Common.—A tree 4–10 m. high; leaves alternate, pinnate, the numerous small entire leaflets elliptic-oblong, rounded at the apex, pale beneath; flowers small, greenish, in long racemes; fruit a lanceolate hairy samara 1–1.5 cm. long.—A decoction of the bitter bark is used as a remedy for various diseases, especially for itch, and as a tonic for the digestive system. The Maya name signifies "ant-path tree." The name has been reported incorrectly as "bel-ciniché," "xbesinic-che," and "xbexinic-ché."

Picramnia antidesma Sw.

Reported from Cozumel Island, *Gaumer*.—A shrub or small tree; leaves pinnate, the leaflets 7–13, oblong-ovate, acuminate, entire; flowers minute, green, in long spikelike panicles; fruit a small red berry.—The leaves and bark are bitter. Called "chililló" in Chiapas.

Simaruba glauca DC.

Xpazakil (Gaumer), *Pasa-ak* (Petén). Sp. *Negrito* (B. H.). Frequent.—A large tree sometimes 30 m. high; leaves pinnate, the leaflets 11–21, large, oblong, glabrate, entire, pale beneath; flowers small, greenish, in large panicles; fruit oval, 1.5–2 cm. long, dark purple, 1-seeded, resembling an olive.—The white flesh of the fruit is edible, but very insipid. It is often sold in Central American markets, where it is called "aceituno" or "jucumico." The Maya name has been reported incorrectly as "xpaxakil."

Suriana maritima L.

Pantsil (Gaumer). Common on seashores.—*Bay-cedar*. A stout dense shrub with small entire pubescent linear-spatulate leaves; flowers small, yellow; wood very hard and heavy, reddish brown.—In Mexico known only from Yucatan. This is probably the "pautzil" listed by the Motul Dictionary. A decoction of the leaves and bark, it states, is used to cleanse old sores, and the powdered leaves, taken in atol, cure bloody flux.

BURSERACEAE. Torchwood Family

Bursera graveolens (HBK.) Triana & Planch. *Elaphrium graveolens* HBK.; *E. pubescens* Schlecht. Linnaea 16: 527. 1842.

Nabanche (Gaumer). Izamal, *Gaumer 690.*—A tree 15 m. high or less; leaves pinnate, the leaflets about 7, crenate, acuminate.—Cuevas describes (Pl. Med. 68. 1913) under the Maya name a tree which he calls also "zazafrás." He states that a decoction of the aromatic bark is given as a sudorific. It is curious that the name sassafras, of North American Indian origin, belonging properly to the genus *Sassafras* of the family Lauraceae, is applied in Mexico and Central America to trees of other families, in Salvador, for instance, to a species of *Croton.*

Elaphrium pubescens was described from Campeche.

Bursera Simaruba (L.) Sarg. *B. gummifera* L.; *Elaphrium Simaruba* Rose.

Chacah (Gaumer; also B. H.), *Sac-chacah* (Cuevas), *Hukup* (B. H.). Sp. *Palo mulato* (Yuc.), *Palo chino* (B. H.), *Palo jiote* (B. H.), *Indio desnudo* (B. H.). *Birchwood* (B. H.), *Gumbolimbo* (B. H.). Common.—A tree, usually of small or medium size; leaves pinnate, the 5 or 7 leaflets entire; flowers small, greenish or whitish; fruit a small 3-angled drupe.—This is one of the most common trees of Mexico and Central America, often planted for living fence posts. The smooth bark peels off in paper-like sheets, leaving a green surface. The sap is aromatic, and yields a sweet-scented gum, which probably was used like that of *Protium.* The wood is light brown, soft, and weak, and of light weight.

The Motul Dictionary gives the following account of the plant: "Mastic of this region, a tree whose branches are easily broken. With its wood the Indians light fire. Its resin is mastic. The young leaves are good for sores, applying them as a poultice and changing them three or four times a day; and the fruit and young shoots, ground and dissolved in water, give an efficacious remedy for snake bites. The juice of the leaves is good for swellings, and the water in which the leaves have been placed cures rash." The plant is said to be used as a remedy for fevers, and an infusion of the leaves is administered for hemorrhage of the stomach. The Kekchí name of *Bursera Simaruba* is "kakah."

It is not certain that the "sac-chacah" is the same tree as "chacah," although the descriptions indicate that it is.

Bursera Schlechtendalii Engler.

Without locality, *Gaumer 24002*.—A shrub or small tree; leaves simple, obovate, 1–3.5 cm. long.

Protium copal (Schlecht. & Cham.) Engl. *Icica copal* Schlecht. & Cham.

Pom. Sp. *Copal* (Yuc., B. H.; of Nahuatl derivation), *Copal macho* (B. H.). Although no specimens are at hand from Yucatan or Quintano Roo, this tree undoubtedly is found at least in the latter, and it occurs in British Honduras.—A large glabrous tree with pinnate leaves; leaflets 5 or 7, oblong, obtuse, entire; flowers small, whitish, in axillary panicles.—The resin obtained from cuts in the trunk was an important article among the ancient Mayas, being used generally as incense in their religious rites, as varnish, and in medicine. Incense played a leading part in their religious observances, hence the tree was indispensable. It is probable that the similar copal of *Bursera Simaruba* was employed in the same way.

In the Kekchí dialect of Guatemala the tree is called "pom-te." Brasseur de Bourbourg lists the word "cib," with the definition "copal." This species has been reported from Yucatan as *Icica heptaphylla* Aubl., a South American species.

MALPIGHIACEAE. Malpighia Family

Bunchosia glandulosa (Cav.) DC.

Zipche (Gaumer). Sp. *Cojón de fraile* (B. H.). Frequent in dry scrublands; flowering from February to June; fruit ripening in May or later.—A shrub about 1 m. high; leaves oblong to ovate, acute, glabrous; flowers yellow, racemose; fruit a red drupe.—The Maya name is derived from "zip," loaded (with fruit), and "che," tree. The species is known in Mexico only from Yucatan. Valdez states that the plant is used in baths to relieve rheumatism. To this species is perhaps referable the report of *B. media* DC., a West Indian species (Millsp. & Loes. BJE. 36: Beibl. 80: 19. 1905), based on *Seler 3942* and *3986*, from Itzimná and Pisté.

Byrsonima bucidaefolia Standl. FMB. 8: 16. 1930.

Type from Kancabtsonot, *Gaumer 23869;* without locality, *Gaumer 24012, 24391, 23966*.—A shrub or small tree; leaves short-petiolate, obovate or cuneate-obovate, 5–8 cm. long, broadly rounded

at the apex and often emarginate, cuneate at the base, paler beneath and thinly tomentose with whitish hairs or glabrate; fruit subglobose, 8 mm. in diameter, glabrous.

Byrsonima crassifolia (L.) DC. *B. Karwinskiana* Juss.

Chi (Gaumer), *Zacpah* (Gaumer; Yuc., B. H.). Sp. *Nancén agria, Nanche. Craboo, Crapoo, Wild craboo* (B. H.). Apparently frequent; sometimes cultivated.—A large shrub or small tree; leaves oblong to elliptic, thick, acute, tomentose, at least when young; flowers yellow, turning red, in raceme-like panicles.—The fruit is a yellow drupe about 1 cm. in diameter, juicy and edible, with a flavor suggesting that of apples. It is reported that ink is made from the green fruit. The ripe fruit is sometimes made into dulces. The tree is common in many parts of Mexico and Central America, where it is known usually as "nance" or "nanche." The Pokonchí name of Guatemala is reported as "tapal."

Gaudichaudia mucronata (Moc. & Sessé) Juss. *G. filipendula* Juss.

Chililló-ak (Gaumer). Frequent in scrublands.—A small slender woody vine with yellow flowers; leaves lance-oblong, obtuse or acute, mucronate, sericeous beneath; fruit of 3 samaras.—The vernacular name is a combination of Spanish and Maya, "ak" signifying "vine." The term "chililló" has no obvious application to the plant.

Heteropteris Beecheyana Juss. *Banisteria Beecheyana* C. B. Rob.

Common.—A large woody vine; leaves oblong to oval, rounded to acute at the apex, pubescent beneath; flowers pink, panicled; fruit of 2–3 samaras.

Heteropteris laurifolia (L.) Juss. *Banisteria laurifolia* L.; *H. longifolia* HBK.; *H. floribunda* HBK.

Without locality, *Johnson*.—A large woody vine with thick, lanceolate to ovate leaves; flowers yellow; inflorescence ferruginous-tomentose.—Called "escobillo" in Tabasco.

The type of *Heteropteris Lindeniana* Juss. was collected by Linden, perhaps in Yucatan, but the locality is doubtful.

Hiraea borealis Niedenzu. *H. Barclayana* Millsp. FMB. 1: 23. 1895, not Benth.

Apparently frequent.—A shrub or small tree; leaves glabrate, obovate, rounded at the apex, obtuse to subcordate at the base; flowers yellow, fascicled on old branches; fruit of 3 samaras.

Malpighia glabra L. *M. glabra* var. *acuminata* Juss.; *M. glabra* var. *typica* Niedenzu; *Tetrapteris inaequalis* Millsp. FMB. 1: 370. 1898, not Cav.

Chi, Kanibinche (Gaumer). Sp. *Nancén, Nance.* Common in dry forests.—A shrub or small tree 6 m. high or less; leaves ovate, glabrate, acute or acuminate; flowers pink; fruit a small red drupe.—The acid fruit is edible, being eaten raw or made into preserves and dulces, or used in the preparation of alcoholic beverages. A decoction of the bark is employed as a remedy for diarrhea. The bark was used, formerly at least, for tanning skins.

Malpighia incana Mill. Gard. Dict. ed. 8. *Malpighia* No. 3. 1768. *M. campechiensis* Lam.

Type from Campeche. Reported from Yucatan.—Leaves acute or acuminate, pubescent, at least beneath.—I have seen no specimens from this region, but the species occurs in Cuba.

Malpighia punicifolia L. *M. punicifolia* var. *vulgaris* Niedenzu.

Uzte (Gaumer), *Xbec-che* (Gaumer). Common in dry forests.—A shrub or small tree 3–6 m. high; leaves oblong to oval, glabrous or nearly so, obtuse or rounded at the apex; flowers pink; fruit a red drupe.—The fruits bear a few needle-like hairs, which are easily detached, and cause intense itching and burning if they penetrate the skin. The fruit is edible. This species is much like *M. glabra*, and has the same properties. It is likely that the two are confused by the native people, and that the same vernacular names are given to both.

Stigmaphyllon Lindenianum Juss. *S. lupulus* Wats.; *S. Lindenianum* var. *yucatanum* Niedenzu, Stigmaph. 2: 18. 1900.

Common.—A large woody vine with broad cordate leaves, these entire or lobed, thinly sericeous beneath; flowers large, yellow, in dense clusters; fruit of 2–3 samaras.

Stigmaphyllon mucronatum (DC.) Juss. *S. mucronatum* var. *typicum* Niedenzu.

Izamal and Sayí.—A small slender woody vine; leaves glabrous or nearly so, oval or elliptic, rounded at the base, rounded at the apex and mucronate; flowers yellow, umbellate.

Tetrapteris Schiedeana Schlecht. & Cham. *Heteropteris yucatanensis* Millsp. FMB. 1: 369. 1898. *T. mexicana* Millsp. FMB. 2: 56. 1900, not H. & A. *?T. Seleriana* Niedenzu in Millsp. & Loes. BJE. 36: Beibl. 80: 18. 1905.

Frequent.—A large, nearly glabrous, woody vine; leaves lanceolate to broadly elliptic, acute or obtuse; flowers yellow; fruit of winged samaras.—The type of *Heteropteris yucatanensis* was collected at Izamal, *Gaumer 816;* that of *Tetrapteris Seleriana* in forests between Tsitás and Pisté, *Seler 3982.*

Vochysia guatemalensis Donn. Smith (family Vochysiaceae) is reported to have the Kekchí name "ruanchap."

POLYGALACEAE. Polygala Family

Securidaca sylvestris Schlecht.

Izamal, *Gaumer* in 1888; Yaxcach, *Gaumer 554.*—A large woody vine, densely pubescent; leaves alternate, ovate to elliptic, entire; flowers pink, in long racemes.

Polygala bryzoides St. Hil.

In cornfield, Hacienda Chablé, *Schott 544.*—A slender low annual, 30 cm. high or less, the stems simple or branched, pubescent; leaves alternate, linear or lanceolate, 1.5–4.5 cm. long; flowers purple-pink or greenish, small, in short slender racemes.

EUPHORBIACEAE. Spurge Family

Acalypha alopecuroides Jacq.

Xmizbil (Gaumer), *Xnixhax* (Millspaugh). Frequent.—A low pubescent herb with broadly ovate, acuminate, serrate leaves; flowers in short thick catkin-like spikes.

Acalypha flagellata Millsp. FMB. 2: 417. 1916.

Frequent; endemic; type from Buena Vista Xbac, *Gaumer 1107.*—A glabrate shrub 2–5 m. high; leaves long-petioled, broadly ovate, long-acuminate, crenate; flowers in very long, slender, lax spikes or racemes; capsules long-pedicellate.

Acalypha Gaumeri Pax & Hoffm. in Engl. Pflanzenreich IV. 147^{17}: 173. 1924.

Endemic; type from Izamal, *Gaumer 318;* without locality, *Gaumer 23943, 24287.*—A stiff shrub; leaves oblong or obovate-oblong, 8–11 mm. long, serrate, sparsely pilose.

Acalypha hispida Burm.

Nemiz (Gaumer). Sp. *Cola de gato.* Listed by Gaumer as in cultivation.—*Chenille plant.* An Old World shrub, often planted for ornament. Very showy because of the large pendent purple-red flower spikes. Grown commonly in tropical America.

Acalypha leptopoda Muell. Arg.

Frequent.—A stout shrub 2 m. high; leaves broadly ovate, on long or short petioles, acuminate, crenate, copiously pubescent; flowers in dense catkin-like spikes.

Acalypha macrostachya Jacq. *A. macrostachya* var. *macrophylla* Muell. Arg.

Sayí, *Seler 3890.*—A stout shrub; leaves large, broadly ovate, pubescent or glabrate, serrate.—The Kekchí name is reported as "sesik."

Acalypha Seleriana Greenm. FMB. 2: 254. 1907. *A. mollis* Millsp. FMB. 1: 302. 1896; Millsp. & Loes. BJE. 36: Beibl. 80: 19. 1905, not HBK.

Chilibtux. Common; type from Xkombec, *Seler 4028;* also in Veracruz.—A stout shrub 2–3 m. high; leaves ovate or lance-ovate, glabrate, dentate, acuminate; flowers in long slender dense spikes.—The tough flexible branches are used for making baskets.

Acalypha setosa A. Rich.

A frequent weed.—A glabrate annual with long-petioled, broadly ovate, short-acuminate, serrulate leaves; flowers in stout, dense, terminal and axillary spikes.

Acalypha simplicissima Millsp. FMB. 2: 417. 1916.

Endemic; apparently rare; type from Progreso, *Gaumer 1182;* Chichankanab, *Gaumer 2225.*—A slender glabrate annual, usually simple; leaves long-petioled, oval-ovate, acute, crenate-dentate.

Acalypha unibracteata Muell. Arg.

Chilibtux (Gaumer). Frequent.—A slender shrub 1–3 m. high; leaves short-petioled, small, ovate or lanceolate, acuminate, serrate-

dentate, pubescent or glabrate; staminate spikes short, slender; pistillate spikes on long filiform peduncles, with one or few bracts.—The slender branches are used for making baskets and bird cages.

Acalypha yucatanensis Millsp. FMB. 1: 371. 1898.

Mixcax (Gaumer). Known only from the type, collected at Progreso, *Gaumer 1176*.—A small erect branched annual with broadly ovate, acute or obtuse, crenate leaves; flowers in short thick sessile axillary spikes.

Adelia barbinervis Schlecht. & Cham.

Tsilám, *Gaumer 640, 23339;* Mina de Oro, *Gaumer 23326*.—A stout shrub 2–4 m. high with stiff spinose branchlets; leaves obovate, obtuse to acuminate, usually glabrate but barbate beneath in the axils of the nerves; flowers small, green, in dense clusters; capsule 1 cm. wide.—The Yucatan specimens are in poor condition, and their determination is somewhat uncertain.

Adelia oaxacana (Muell. Arg.) Hemsl.

Xtompac. Xcholac, *Gaumer 446*.—A shrub or small tree 6 m. high or less; leaves obovate, entire, obtuse, velvety-pilose; fruit a small capsule.

Astrocasia phyllanthoides Robins. & Millsp. BJE. 36: Beibl. 80: 20. 1905. *Phyllanthus nutans* Millsp. FMB. 1: 306. 1896, not Sw.

Pixtonkax (Gaumer), *Kahyuc, Caba-pixtolon.* Common in dry forests; endemic in the Peninsula; type from Itzimná, *Seler 3943*.—A deciduous shrub 1–2.5 m. high, glabrous; leaves long-petiolate, ovate, obtuse, entire, pale beneath; flowers dioecious, long-pedicellate, fascicled; fruit a small capsule.

Codiaeum variegatum (L.) Blume.

Grown for ornament; native of the Old World tropics.—A glabrous shrub with variously lobed leaves, variegated with red, pink, or yellow.—The plants, of which there are many varieties, usually are called crotons. They are planted abundantly in most parts of tropical America.

Croton Cortesianus HBK. Nov. Gen. & Sp. 2: 83. 1817.

Common; type collected near Campeche.—A shrub; leaves oblong-ovate, acute or acuminate, densely stellate-pubescent beneath, green and glabrous above.—This species is widely distributed in Mexico, but I have seen no specimens from Yucatan.

Croton flavens L. *C. zalapensis* Millsp. FMB. 1: 26. 1895, not *C. xalapensis* HBK. *C. Cortesianus* Millsp. FMB. 1: 303. 1896, 1: 371. 1898, not HBK. *C. rhamnifolius* var. *salviaefolius* Millsp. FMB. 1: 303. 1896, not *C. rhamnifolius* HBK. *C. rhamnifolius* Standl. CNH. 23: 619. 1923, not HBK.

Xabalam (Gaumer), *Ekbalam* (Gaumer), *Icaban* (Schott). Common.—A low aromatic shrub, densely stellate-tomentose; leaves oblong-ovate, acute or acuminate, rounded or subcordate at the base; flowers in dense stout racemes.—A decoction of the bark is employed as a remedy for syphilis, and also for toothache.

The "ekbalam" described by Cuevas (Pl. Med. 45, Ilustr. *pl. 15, f. 2*) is a different plant, if the description is accurate, since it is said to have milky sap, but it is used in local medicine for the same purposes.

Croton fragilis HBK.

Tanche (Gaumer; reported also as "taanche"). Frequent.—A slender shrub; leaves lanceolate to ovate, obtuse or acute, green above, densely covered beneath with silvery stellate scales; flowers in long slender interrupted racemes.

Croton Gaumeri Millsp. FMB. 2: 418. 1916.

Known only from Izamal, the type collected by Gaumer in 1904.—A small shrub with long-petioled lanceolate acuminate leaves, sparsely stellate-pubescent and green on both surfaces; flowers in slender interrupted racemes.—This plant is close to *C. humilis* L., and doubtfully distinct.

Croton glabellus L.

Chuts (Schott), *Perescuch* (Petén, *Cook*). *Wild cinnamon* (B. H.). Frequent.—A shrub or small tree, the pubescence of minute brown scales; leaves lance-oblong to oblong-ovate, obtuse to acuminate; flowers in short racemes.—Known in Tabasco as "copalchí." The tree reported by Cuevas (Pl. Med. 86. 1913) as "sac pocche" and "pereskuz" is probably of this species. He states that a decoction of the leaves is used in baths for biliousness, and that the resin is utilized for cauterizing wounds. The Maya name is reported also as "pelexcuch" and "perexcuch." The Kekchí name is given as "canoh."

Croton glandulosepalus Millsp. FMB. 2: 419. 1916.

Frequent; endemic; type collected between Progreso and Mérida, *Gaumer 1154.* Kancabtsonot, *Gaumer 23544;* Chichankanab, *Gaumer 2204;* without locality, *Gaumer 1046, 23953, 24330.*—A shrub 1–2 m. high; leaves oblong-ovate, acuminate, the sparse pubescence of appressed stelliform hairs; flowers in elongate terminal spikes; sepals glandular-ciliate.

Croton humilis L. *C. albidus* Millsp. FMB. 1: 303. 1896; Millsp. & Loes. BJE. 36: Beibl. 80: 19. 1905, not Muell. Arg.

Icaban (Gaumer). Common.—A low slender stellate-pubescent aromatic shrub; leaves ovate or lanceolate, entire, usually acute; flowers in short interrupted racemes.—The bark of this and related species is employed locally as a remedy for malaria, and it is reputed to have stimulant, diaphoretic, and expectorant properties. The plant is applied to wounds to cauterize them. Many of the Yucatan Crotons are much alike, and it is probable that the various vernacular names here listed for them are often applied indiscriminately.

Croton lobatus L.

An occasional weed.—A coarse pilose branched annual; leaves deeply 3–5-lobed, the lobes acuminate, serrate; flowers in long interrupted spikes.

Croton malvaviscifolius Millsp. FMB. 2: 419. 1916.

Endemic; type from Yot Tsonot, *Gaumer 1319;* Chankon, *Becquaert 58.*—A stout shrub 2.5–3 m. high; leaves broadly ovate, cordate at the base, stellate-tomentose, whitish beneath, acute, coarsely serrate; flowers white.

Croton Millspaughii Standl. FMB. 8: 18. 1930. *C. ciliato-glandulosus* Millsp. FMB. 2: 57. 1900, not Ort.

Sp. *Picosa.* Known only from the type, collected on Cozumel Island, *Millspaugh 1593.*—A shrub; leaves slender-petiolate, small, ovate or oblong-ovate, acuminate, obtuse or rounded at the base, glabrous or nearly so, ciliate with long gland-tipped hairs; flowers in short dense racemes.—The plant is closely related to the widespread *C. ciliato-glandulosus,* which is called "picosa" and "ciega-vista" in Mexico and Central America. It is stated that the gland-tipped hairs adhere to the hands, and injure and inflame the eyes if introduced into them.

Croton niveus Jacq. *C. arboreus* Millsp. FMB. 1: 303. 1896.

Chul (Gaumer), *Chulche.* Common in thickets.—A large shrub or a tree, said to attain a height of 18 m., the pubescence of minute silvery scales; leaves ovate or broadly ovate, entire, acute, cordate at the base; capsule smooth.—Known in various parts of Mexico and Central America as "quina" and "copalchí." Most of the Yucatan specimens lack capsules, and some may be referable rather to *C. reflexifolius.*

This is probably the "copalche," "palo santo," and "quina" of Cuevas (Pl. Med. 43. 1913). He reports that it has astringent and febrifuge properties, and is employed as a remedy for hemorrhoids and malaria.

Croton punctatus Jacq. *C. maritimus* Walt.

Zac-chunum (Gaumer). Sp. *Yerba del jabalí* (Gaumer). Common on seashores.—A low herb, the dense pubescence of silvery scales; leaves oblong to oval or rounded, entire, rounded at apex; flowers in short racemes.

Croton reflexifolius HBK.

Without locality, *Gaumer 24077.*—A shrub or small tree, the pubescence of minute scales; leaves broadly ovate-cordate, acute, entire; capsules tuberculate.

Dalechampia scandens L.

Moolcoh (Gaumer; reported also as "xmool-coh" and "xmolcoh"). Frequent.—A woody or herbaceous vine; leaves 3-lobate, densely velvety-pubescent, the lobes acute or obtuse, serrulate; flowers in small clusters, each cluster subtended by 2 large cream-colored bracts; fruit a capsule.—The flowers bear numerous bristly hairs which penetrate the skin easily, causing great irritation. The plant is a conspicuous one when in flower because of the showy bracts. The Maya name signifies "puma-foot."

Dalechampia Schottii Greenm. FMB. 2: 255. 1907. *D. denticulata* Millsp. & Loes. BJE. 36: Beibl. 80: 20. 1905, not Griseb.

Moolcoh. Common; endemic; type from Mérida, *Schott 534.*—Leaves ovate, simple, obtuse or acute, obscurely serrulate, pubescent or glabrate; bracts green.

D. Schottii var. *trifoliolata* Greenm. (FMB. 2: 255. 1907; type from Chichankanab, *Gaumer 1512*) is a form with 3-foliolate leaves, the segments linear-oblong or lance-oblong.

Ditaxis tinctoria (Millsp.) Pax & Hoffm. in Engl. Pflanzenreich IV. 147[6]: 59. 1918. *Argithamnia tinctoria* Millsp. FMB. 1: 302. *pl. 14*. 1896.

Sp. *Tinta roja* (Gaumer). Frequent; type from Xcholac, *Gaumer 426;* also occurring in Central America.—A shrub or herb 1 m. high, or often herbaceous; leaves ovate-lanceolate, short-petiolate, entire or nearly so, acuminate, densely sericeous beneath; fruit a small capsule.—The plant yields a rose-pink dye.

Drypetes lateriflora (Swartz) Krug & Urb. *D. crocea* Poit.

Frequent in dry forest and thickets.—A small tree with coriaceous lanceolate glabrate leaves; flowers small and green; fruit a velvety red drupe.

Euphorbia Armourii Millsp. FMB. 1: 28. *pl. 2*. 1895. *Eumecanthus Armourii* Millsp. FMB. 2: 413. 1916. *Euphorbia arenaria* Millsp. FMB. 1: 371. 1898, not HBK.

Common; endemic; type from Chichen Itzá, *Millspaugh 108.*—An erect branched annual; leaves alternate, long-petiolate, broadly ovate, rounded to acute at the apex, entire, pubescent; flowers in small leafy-bracted cymes, green.

Euphorbia astroites Fisch. & Mey. *E. astroites* var. *heterappendiculata* Millsp. FMB. 1: 28. 1895. *Eumecanthus astroites* Millsp.

Frequent in dry soil.—A slender erect pubescent much-branched herb; leaves small, mostly alternate, long-petiolate, rounded-ovate or rounded, entire.

Euphorbia barbicarina (Millsp.) Standl., comb. nov. *Chamaesyce barbicarina* Millsp. FMB. 2: 401. 1916. *E. adenoptera* Millsp. FMB. 1: 371. 1898, in part, not Bertol.

Frequent; endemic; type from Sitilpech Road, *Gaumer 939a.*—A prostrate pubescent annual; leaves small, opposite, rounded at the apex, serrulate; involucres axillary, pubescent.

Euphorbia Blodgettii Engelm. *E. ovalifolia* Millsp. FMB. 1: 27. 1895, not Engelm.

Mugeres Island, *Millspaugh 19.* In the West Indies and Florida, but not known elsewhere in Mexico.—A glabrous prostrate annual; stems often pale; leaves oblong to oval, small, opposite, rounded at the apex, rather thick, entire; involucres axillary, glabrous.

Euphorbia buxifolia Lam. *E. buxifolia* f. *reclinata* Millsp. FMB. 2: 60. 1900. *E. buxifolia* f. *seminuda* Millsp. FMB. 2: 60. 1900. *E. buxifolia* f. *florida* Millsp. FMB. 2: 60. 1900. *Chamaesyce buxifolia* Small.

Common on seashores.—An erect glabrous shrub 50 cm. high or less; stems usually very densely leafy; leaves opposite, fleshy, ovate or oblong, obtuse or acute, entire; involucres and capsules glabrous.—The forms enumerated above, representing minor variations, were described from Yucatan.

Euphorbia cozumelensis Millsp. FMB. 2: 61. 1900. *E. maculata* Millsp. FMB. 1: 27. 1895, not L. *E. thymifolia* Millsp. FMB. 1: 304. 1896, not Burm. *E. cozumelensis* var. *pilosulca* Millsp. FMB. 2: 62. 1900. *Chamaesyce cozumelensis* Millsp. FMB. 2: 402. 1916.

Sac-xanabmucuy (Gaumer). Common, chiefly on seashores; endemic; type from Cozumel Island, *Millspaugh.*—A prostrate pubescent annual or perennial; leaves opposite, oval, serrulate; involucres and capsules pubescent.—The type of the variety also is from Cozumel, *Millspaugh.*

Euphorbia dioica HBK. *E. adenoptera* Millsp. FMB. 1: 28. 1895, 1: 304. 1896, 1: 371, in part. 1898; Millsp. & Loes. BJE. 36: Beibl. 80: 20. 1905, not Bertol. *Chamaesyce dioica* Millsp.

Mehenxanabmucuy (Gaumer). Common.—A prostrate pubescent herb; leaves opposite, oblong, serrulate, obtuse or acute; involucres axillary, with conspicuous, red or pink appendages.—The name "xanabmucuy" probably is applied to all the small prostrate Euphorbias of the subgenus *Chamaesyce.* Cuevas reports (Pl. Med. 105. 1913) under this name a plant of this group whose milky juice is applied to pimples, especially those on the eyelids. His illustration (Ilustr. *pl. 24, f. 2*) is *Tribulus cistoides,* but his description relates to a *Euphorbia.* The species of this group are usually called "golondrina" ("swallow") in Mexico, and the "mucuy" of the Maya name signifies "dove." Aznar reports a "xanabmucuy de hojas grandes," which might well be such a plant as *Euphorbia hirta.*

The "xpakumpak" listed by Cuevas (Pl. Med. 115. 1913) seems, from the description, to be probably a *Euphorbia* of this type. The crushed plant is applied to reduce inflammation, and the decoction is administered as a remedy for dysentery.

Euphorbia Gaumerii Millsp. FMB. 1: 372. 1898. *Aklema Gaumeri* Millsp. FMB. 2: 416. 1916.

Zacitz (Gaumer), *Box-chacah* (Gaumer). Frequent; endemic; type from Buena Vista Xbac, *Gaumer 1073*.—A shrub, reported as subscandent and 3 m. long; leaves opposite, ovate-oblong, obtuse or acute, entire, pubescent or glabrate; involucres pubescent, in panicled cymes.

Euphorbia graminea Jacq. *E. graminea* var. *virgata* Millsp. FMB. 1: 372. 1898. *E. graminea* var. *lancifolia* Millsp. FMB. 1: 372. 1898. *Eumecanthus gramineus* Millsp.

Onobkax (Gaumer). Common.—A low herb, glabrous or pubescent; leaves rounded-ovate to linear, entire.—The type of var. *virgata* is from Tekax, *Gaumer 1128;* the type of var. *lancifolia* from Izamal, *Gaumer 969*. The latter is a form with narrow leaves. The species has been collected in Petén with the name "escorpión-xiu," a combination of Spanish and Maya.

Euphorbia heterophylla L. *E. heterophylla* var. *cyathophora* Griseb.; *E. dentata* Millsp. FMB. 1: 372. 1898, not Michx.

Hobonkax (Gaumer; reported as "hobonkak"). A common weed.—An erect annual, pubescent or nearly glabrous; lower leaves opposite, the upper alternate, very variable, linear to fiddle-shaped, entire or dentate; upper leaves often colored red, white, or pink.

This plant may be the "hobonte-kaak" reported by Cuevas (Pl. Med. 51. 1913), for the description applies fairly well. The milky sap is said to be applied as a remedy for erysipelas.

Euphorbia hirta L. *E. pilulifera* L.; *E. pilulifera* var. *procumbens* Boiss.; *E. adenoptera* Millsp. FMB. 1: 371. 1898, in part, not Bertol.

Xauay (Gaumer), *Xanabmucuy*. Sp. *Golondrina, Tianguis* (Valdez; a Nahuatl name). A common weed.—An erect or procumbent, pubescent annual; leaves ovate, acute, serrate, often blotched with red; involucres in dense peduncled clusters; capsules pubescent.—The milky sap is used to cauterize granulated eyelids, and the plant is employed also as a remedy for gonorrhea, itch and other skin diseases, fevers, asthma, and bronchitis. The species is of special interest because it and its relatives have been found to be the hosts of the organisms which cause the tropical ulcers so prevalent, especially on the legs of children, in Central America.

Euphorbia hypericifolia L.

Toplanxiu (Gaumer). A common weed.—An erect annual, glabrous or nearly so; leaves oblong, serrulate, opposite, nearly sessile; involucres glabrous, in small cymes; capsules glabrous.—The plant is eaten by horses. It is reported to have diaphoretic, expectorant, laxative, and alterative properties, and is employed in the treatment of cholera infantum, diarrhea, dysentery, indigestion, and fevers.

Euphorbia lancifolia Schlecht. is called "ixbul" in Petén, according to Pittier.

Euphorbia lasiocarpa Klotzsch. *E. hypericifolia* Millsp. FMB. 1: 27. 1895, in part, not L. *E. Preslii* Millsp. FMB. 1: 304. 1896, not Guss.

Common.—An erect pubescent annual; leaves opposite, oblong or oval, obtuse, denticulate; involucres pubescent, in small cymes; capsules pubescent.

Euphorbia prostrata Ait. *E. rhytisperma* Millsp. FMB. 1: 304. 1896, 1: 374. 1898, not Engelm. *E. serpyllifolia* Millsp. FMB. 1: 304. 1896, 1: 374. 1898, not Pers. *Chamaesyce prostrata* Small.

Xanabmucuy. A common weed.—A prostrate, pubescent or glabrate annual; leaves opposite, oblong to ovate, obtuse, serrulate; involucres axillary; capsules pubescent on the angles.

Euphorbia pulcherrima Willd.

Sp. *Flor de pascua*. Commonly cultivated.—*Poinsettia*. A shrub or small tree; leaves broadly ovate or panduriform, glabrous or pubescent; upper leaves, surrounding the inflorescence, bright red, rarely creamy white or yellow.—The poinsettia is grown for ornament generally in tropical America. Although of American origin, its native habitat is doubtful. It is called "flor de pascua" ("Christmas-flower") because it is at its best about Christmas time. No Maya name is reported for it, an indication that it has been introduced into the Peninsula.

Euphorbia rutilis Millsp. *E. adenoptera* Millsp. FMB. 1: 371. 1898, not Bertol.

Frequent.—A prostrate pubescent annual; leaves opposite, oblong, obtuse or acute, serrulate; involucres in dense axillary clusters, the appendages petal-like, red or pink.

Euphorbia Schlechtendalii Boiss. *E. mayana* Millsp. FMB. 1: 304. *pl. 16.* 1896. *Aklema mayana* Millsp. FMB. 2: 416. 1916.

Zacchacah (Gaumer), *Boxchacah.* Frequent.—A shrub 1–2 m. high, glabrous or nearly so; leaves long-petioled, verticillate, ovate to rounded, entire, obtuse or rounded at the apex; involucres in small dense cymes.—The plant is employed as a purgative, also for affections of the lungs and hemorrhage of the stomach. The type of *E. mayana* was collected at Izamal, *Gaumer 302.*

Euphorbia splendens Boj.

Sp. *Corona de Cristo.* Listed by Gaumer as cultivated. Native of Madagascar.—This *Euphorbia*, with very spiny stems and showy red involucres, is grown commonly as an ornamental plant in tropical America.

Euphorbia trichotoma HBK. *E. trichotoma* var. *macilenta* Millsp. FMB. 2: 67. 1900.

Cozumel Island, *Millspaugh 1598, 1600; Gaumer* in 1885.—A low, fastigiately branched, perennial, glabrous herb; stems densely leafy, the leaves alternate, oblong-spatulate, rounded at the apex, minutely serrulate, sessile.

Euphorbia villifera Scheele. *E. pilosula* Millsp. FMB. 1: 373. 1898, not Engelm. *Chamaesyce villifera* Small.

Occasional.—A prostrate or ascending, pubescent annual; leaves opposite, oblong or ovate, serrulate or subentire; capsules glabrous.

Euphorbia xbacensis Millsp. FMB. 1: 374. 1898. *Eumecanthus xbacensis* Millsp. FMB. 2: 413. 1916.

Endemic; known only from the type, collected at Buena Vista Xbac, *Gaumer 1108.*—A nearly glabrous, erect, perennial herb; leaves opposite, petiolate, small, ovate-lanceolate, entire, obtuse; involucres solitary, pubescent.

Euphorbia yucatanensis (Millsp.) Standl., comb. nov. *E. Karwinskyi* Millsp. FMB. 2: 65. 1900, not Boiss. *Chamaesyce yucatanensis* Millsp. FMB. 2: 407. 1916.

Endemic; known only from the type, collected at Progreso, *Millspaugh 1696.*—A small pubescent annual; leaves opposite, oblong-ovate, obtuse or acute, serrulate; involucres and capsules densely pubescent.

Gymnanthes lucida Sw.

Lignum-vitae (B. H.). Occasional.—A glabrous shrub or small tree sometimes 10 m. high; leaves obovate-oblong, 5–10 cm. long, obtuse, serrulate or entire; flowers small, green, spicate; fruit a capsule.—The wood is hard, heavy, close-grained, and dark brown. The milky sap is said to be very poisonous if in contact with the skin. This plant, of course, is altogether different from the true lignum-vitae (*Guaiacum*).

Hippomane Mancinella L.

Common on seashores.—*Manchineel.* A glabrous tree with smooth bark; leaves oblong-ovate or oval, persistent, acute, serrulate; flowers small, green, spicate; fruit resembling a small green apple.—This is one of the most characteristic trees of tropical American seashores. The milky latex causes intense irritation upon the flesh, with blistering and swelling, and the fruit, also, is very poisonous. The wood is dark brown, soft, and close-grained. The usual name for the tree in Mexico and Central America is "manzanillo" ("little apple," in allusion to the fruit), of which manchineel is a derivative. The Maya name of this important tree, strangely enough, has not been reported.

Hura polyandra Baill. *H. crepitans* Dondé, Apuntes 114. 1907, not L.

Solimanche. Sp. *Habilla, Jabilla, Haba de San Ignacio* (Gaumer). Frequent.—*Sandbox.* A large tree, the trunk covered with fine hard prickles; leaves long-petioled, broadly cordate-ovate, glabrous, crenate or serrate; fruit resembling a small pumpkin, 8–10 cm. broad, separating at maturity into about 15 cells shaped like the sections of an orange.—The tree is common throughout the lowlands of most parts of tropical Mexico and Central America. The wood is light and soft, whitish with brown stripes. The milky latex of the tree is poisonous if in contact with the skin, causing inflammation and swelling. It is used in some parts of Mexico for poisoning fish. The fruits are a favorite food of macaws. When ripe, the fruits explode with great violence, scattering the seeds to a long distance. The seeds are employed in Yucatan as a purgative, but their use is dangerous. The Kekchí name is given as "kakibach."

Jatropha aconitifolia Mill. *J. urens* Millsp. FMB. 1: 305. 1896, 1: 374. 1898, not L. *J. urens* var. *stimulosa* Millsp. FMB. 1: 305. 1896, 1: 374. 1898, 2: 59. 1900, not *J. stimulosa* Michx.

Chay (Gaumer), *Tsimtsimchay* (Gaumer), *Tsintsin-chay* (Gaumer), *Xtsats* (Schott), *Xtsah, Tzah* (Pérez). Sp. *Chaya*. Common in stony waste lands.—A shrub or small tree with milky sap, usually armed with long stinging hairs; leaves deeply lobed; flowers white.—The plant varies greatly in the cutting of the leaves and in the pubescence. Some plants are densely covered with long hairs like those of a nettle, which sting the flesh and cause excruciating pain, but other plants are nearly or quite devoid of such hairs. The young leaves are cooked and eaten as a pot herb in Yucatan, as well as in some parts of Central America. It is probable that the different vernacular names are applied to more or less distinct forms of the plant, depending upon the relative abundance of stinging hairs. Pérez states that the "tzah" is a very spiny kind of "chaya." The names "lal" and "xalal" have been reported for the plant.

Jatropha Curcas L.

Xkakalche (Gaumer; reported also as "xcacalche"). *Sicilte* (Cuevas), *Siclite* (Cuevas). Common.—*Physic-nut*. A shrub or small tree with thick branches and milky sap; leaves glabrate, long-petiolate, angled or shallowly 3–5-lobate; flowers greenish yellow, in small stalked cymes; fruit a fleshy capsule, containing 1 to 3 large oily seeds.—This is one of the most common plants of Mexico and Central America. It is often planted for living fence-posts. The large chestnut-like seeds, usually called "piñones," are poisonous, and have violently purgative properties, but when thoroughly roasted they are well-flavored and edible. They are rich in oil, which is said to be used in Yucatan in the manufacture of soap and as an adulterant of almond oil and cod-liver oil. The oil is applied to burns to relieve the pain and to assist in healing them. The Kekchí name is "sakilte."

The Motul Dictionary lists "ppih," with the definition, "avellanas desta tierra, fruta purgativa," a description which must indicate the seeds of *Jatropha Curcas*.

Jatropha Gaumeri Greenm. FMB. 2: 256. 1907. *Jacaratia mexicana* Millsp. FMB. 1: 35. 1895, as to specimen cited, not DC. *Ficus jaliscana* Millsp. FMB. 1: 293. 1896, not Wats.

Pomolche, Xpomolche (Cuevas), *Chip-che* (B. H.). Sp. *Piñón* (B. H.). *Wild physic-nut* (B. H.). Common in dry forests; endemic; type from Izamal, *Gaumer 365*.—A shrub or tree 3–5 m. high, the trunk sometimes 50 cm. in diameter; leaves broadly cordate, entire,

glabrous or nearly so; flowers in small, mostly sessile cymes.—The branches are used for making whistles. A solution of the milky sap in water is used as a wash to cure sores in the mouth. The name "chul-che" has been reported for this species.

Jatropha yucatanensis Briq. Ann. Cons. Jard. Genève 4: 230. 1900.

Type from Campeche, collected by Linden; also in Chiapas.—A tree; leaves broadly cordate, glabrate.

Manihot aesculifolia (HBK.) Pohl, Pl. Bras. 1: 55. 1827. *Janipha aesculifolia* HBK. Nov. Gen. & Sp. 2: 107. *pl. 109.* 1817. *M. rhomboidea* Millsp. FMB. 1: 375. 1898, not Muell. Arg.

Chac-che (Gaumer; listed also as "xchache"). Sp. *Yuca cimarrona.* Type from Bay of Campeche; collected also at Mérida.—A large glabrous herb; leaves 5–7-parted, the lobes broad, entire, glaucous beneath.—No information is available concerning this species in the Peninsula, but it is apparently a wild plant, probably of no economic value.

Manihot carthaginensis (Jacq.) Muell. Arg.

Batul (Gaumer), *Chac-che* (Schott). Collected at Mérida, Orchidia, and Izamal.—Similar to the preceding, but the divisions of the leaves lobed.—A wild plant, probably of no economic importance. The vernacular name has been listed as "xcache," and "xhac-che."

Manihot dulcis (Gmel.) Pax. *M. palmata* var. *aipi* Muell. Arg.

Cicitsin (Gaumer). Sp. *Yuca dulce.* Cultivated commonly.—A large glabrous herb; leaves 3–13-parted, the divisions entire, glaucous beneath.—The sweet cassava is grown for its large starchy roots, which are cooked and eaten as vegetable. In the fresh state they are not poisonous like those of *M. esculenta.* In Yucatan starch is extracted from the roots. The plant, which is said not to flower in Yucatan, is propagated from cuttings.

Manihot esculenta Crantz. *M. utilissima* Pohl; *M. Manihot* Karst.

Tsin, Tsiim (Pérez). Sp. *Yuca, Yuca brava, Yuca amarga.* Cultivated extensively.—*Cassava.* A glabrous herb 3 m. high or less; leaves 3–7-parted, the divisions narrow, entire, glaucous beneath; capsule winged.—This is an important food plant in most parts of

tropical America, being in many regions of South America the chief starchy food, or a substitute for bread. In Mexico and Central America the large tuberous roots, which suggest black-skinned sweet potatoes, are boiled and eaten as a vegetable. Before cooking they are poisonous, in most varieties at least. Tapioca and starch are obtained from the roots, and the starch was formerly an important article of commerce in Yucatan. The plant is a native of Brazil, but is believed to have been introduced into Mexico before the Conquest. The words cassava and yuca are apparently of Antillean origin.

Pedilanthus itzaeus Millsp. FMB. 1: 305. 1896.

Yaxhalalche. Frequent; type from Tsilám, *Gaumer 452;* also in Cuba and Hispaniola.—A shrub 1.5 m. high with milky sap, the stems fleshy and green; leaves soon deciduous, broadly ovate, obtuse or acute, fleshy; involucres slipper-shaped, pink.—The latex has violent purgative properties, a few drops in water being taken as a purge. The Indians also have a belief that a single drop placed upon the navel will act as a purgative. The stems and leaves are reputed to have emmenagogue and antisyphilitic properties. Dondé states that pieces of the plant are placed among clothes to bleach them. This, as well as other species, is sometimes cultivated, especially as a hedge plant. The Maya name signifies "green-stem shrub."

Pedilanthus nodiflorus Millsp. FMB. 1: 305. 1896.

Yaxhalalche. Common in the coastal region; type from Tsilám, *Gaumer 649;* endemic.—A shrub 1–1.5 m. high, usually leafless; involucres red.—Both the Yucatan species are alike in general appearance, and they probably are not distinguished locally.

Phyllanthus acidus (L.) Skeels. *Ribes rubrum* Cuevas, Pl. Med. 49, Ilustr. *pl. 36, f. 1.* 1913, not L.

Sp. *Grosella. Wild plum* (B. H.). Sometimes planted; native of the East Indies.—*Otaheite gooseberry, star gooseberry.* A glabrous tree with small, entire, orbicular to ovate, distichous leaves; flowers small, green or pink, panicled on old branches; fruit a large green drupe.—The very acid fruit is used for preparing dulces. A sirup made from it is administered for stomach affections.

Phyllanthus conami Sw. *P. acuminatus* Vahl.

Kahyuc (Gaumer), *Xpayhul.* Sp. *Ciruelillo* (B. H., Tabasco). Common.—A slender glabrous shrub or small tree; leaves distichous,

ovate, acuminate, 3–4 cm. long; fruit a small capsule.—Cuevas states that the crushed leaves are applied to reduce inflammation, especially of the breasts.

Phyllanthus glaucescens HBK. Nov. Gen. & Sp. 2: 115. 1817.

Xpbixtdon (Gaumer), *Pixton* (B. H.). *Monkey-rattle* (B. H.). Common; type from Campeche.—A glabrous shrub or small tree; leaves large, oval to orbicular, abruptly short-acuminate, glaucous beneath; flowers in slender narrow panicles; capsule 2 cm. or more in diameter.

Phyllanthus carolinensis Walt.

Cababesinixte (Becquaert). Common.—A small erect glabrous herb, the leaves elliptic to obovate or rounded, 7–20 mm. long; fruit a small capsule.

Phyllanthus Niruri L.

Occasional.—A small slender glabrous annual; leaves obovate-oblong, 6–15 mm. long, nearly sessile, rounded at the apex.

Phyllanthus nobilis (L. f.) Muell. Arg.

Xnabalche. Clawberry (B. H.). Frequent in dry scrublands.—A glabrous shrub or small tree; leaves elliptic to oblong, 5–12 cm. long, acute; flowers greenish white, on slender pedicels, fasciculate.

With the vernacular name "panatela" Gaumer lists in his Sinonimía *Phyllanthus angustifolius*, and Aznar "*Xylophilla montana* Sw." These names perhaps relate to one of the leafless Antillean species of the group *Xylophylla* of the genus *Phyllanthus*, which may be in cultivation in Yucatan as an ornamental plant.

Ricinus communis L.

Xkoch, Koch. Sp. *Higuerilla.* Common.—*Castor-bean.* A large glabrous herb or shrub with large, palmately lobate leaves.—The plant is probably native in tropical Africa, but was brought to America at an early date. It has been cultivated in the Peninsula for its seeds, the source of the well-known castor-oil ("aceite de castor," "aceite de ricino," "aceite de palma-christi"). The oil is best known as a purgative, but it is used in Yucatan for lighting and as a lubricant, and it has been exported from the region. Five or six of the seeds are sometimes eaten as a purgative. The leaves are

employed locally as poultices to relieve pain in the abdomen, and they are used also as poultices and in decoction to cleanse and heal sores. The Maya name has been reported also as "xox," "xcooch," and "xoch."

Sebastiania adenophora Pax & Hoffm. in Engl. Pflanzenreich IV. 147[5]: 145. 1912. *Excoecaria glandulosa* Millsp. FMB. 1: 305. 1896, not Sw.

Kanchunup, Canchunup. Occasional in dry thickets and forests; type from Tsilám, *Gaumer 615;* endemic; Chichankanab, *Gaumer 1870;* Suitún, *Gaumer 23293.*—A glabrous shrub or small tree 3–6 m. high; leaves ovate, 3–5 cm. long, short-petiolate, acute, serrulate; flowers small, green, in slender spikes; fruit a capsule.

Tragia nepetaefolia Cav.

Popox (Gaumer), *Hoobox* (Valdez). Sp. *Ortiguilla.* Common.—A slender perennial herb, armed with stinging hairs; leaves small, ovate or lanceolate, serrate; fruit a small capsule.—The hairs sting the flesh painfully, sometimes causing swelling. The plant is reported as a remedy for rheumatism.

The Motul Dictionary gives the Maya name as "ppoppox." It reports also the "sacppoppox," "chacppoppox," and "yaxppoppox," which may be stinging plants of other families.

Tragia yucatanensis Millsp. FMB. 2: 420. 1916.

Popox. Type from Chichankanab, *Gaumer 1505, 2154;* San Anselmo, *Gaumer 1931;* Kancabtsonot, *Gaumer 23623;* endemic.—Plants herbaceous or suffrutescent, erect or scandent, hirsute; leaves large, lance-oblong or ovate-oblong, serrate.

ANACARDIACEAE. Cashew Family

Anacardium occidentale L.

Sp. *Marañón.* Cultivated in Yucatan, and probably wild in Campeche.—*Cashew.* A small tree; leaves obovate, rounded at the apex, glabrous; flowers small, in terminal panicles.—The cashew is one of the common trees of the drier parts of Mexico and Central America, and is planted for its fruit. It is stated that the tree is not native in Yucatan, and no Maya name is reported for it. The fruit is a curious one, consisting of a fleshy, red or yellow, pear-shaped receptacle, at whose apex is borne the kidney-shaped nutlike

drupe, containing a large seed. The receptacle, which suggests a bullnose pepper, is sweet and very juicy, and spongy, with a peculiar agreeable flavor. It is eaten raw, or made into dulces and refrescos. The seeds contain cardol, a caustic acrid oil which blisters the skin. When the seeds are roasted, the oil is driven off, and they are then very good to eat, resembling almonds, to which they are perhaps superior in flavor. They are much used for flavoring candy. The wood is close-grained, strong, and durable.

Astronium graveolens Jacq.

Kulimche (Gaumer); reported also as "kulinche" and "culinche." Sp. *Palo mulato* (B. H.). Apparently frequent.—A tree 30 m. high or less; leaves pinnate, the leaflets oblong, serrate or almost entire, glabrous or nearly so; flowers small, greenish, panicled.—The wood is of good quality, and is valued for cabinetwork.

Mangifera indica L.

Sp. *Mango*. Planted commonly; native of Asia.—A medium-sized glabrous tree; leaves persistent, narrowly oblong-lanceolate; flowers greenish, in large panicles.—The mango is perhaps the favorite fruit tree of tropical America, to which it was introduced long ago. The fruit ripens in spring and during the summer months. It varies greatly in quality, that of some trees being full of fiber and having a strong turpentine taste, but the best varieties have a delicious flavor.

Metopium Brownei (Jacq.) Urban. *Rhus Metopium* L.; *Persea gratissima* Millsp. FMB. 1: 297. 1896, as to specimens cited, not Gaertn.

Chechem (Gaumer; "boat-wood"), *Cabalchechem* (Gaumer), *Chechen* (B. H.). Sp. *Palo de rosa* (Gaumer). *Black poison-wood*, *Honduras walnut* (B. H.). Common.—Reported as varying from only a shrub to a tree 25 m. high, with a trunk sometimes 1.2 m. in diameter; leaves pinnate, the 3–7 leaflets obovate or rounded, entire, glabrous; flowers whitish, in large axillary panicles; fruit a compressed purple drupe, about 8 mm. long.—This tree is best known for its poisonous properties. In contact with the skin it causes intense itching, followed by blistering and swelling, and it is stated that merely passing beneath the trees, if there is dew or rain, is dangerous. The dark brown wood makes handsome furniture, but it is somewhat dangerous to work. The fruit is reported to be eaten

by deer and peccaries. Gaumer states that the tree has diaphoretic and sedative properties, and that it may be used in treating erysipelas, measles, small-pox, inflammatory rheumatism, and various other diseases. This tree has been reported from Yucatan under the name *Rhus Toxicodendron*.

There is reported from Yucatan a "zac-chechem" which has not been identified.

Spondias Mombin L. *S. lutea* L.

Kanabal (Gaumer), *Abal, Kinin-hobo* (Millspaugh). Sp. *Ciruela amarilla* (Yucatan), *Jobo* (B. H.). *Hogplum* (B. H.). Common.—A tree, often 10–15 m. high; leaves pinnate, deciduous, the leaflets abruptly acuminate, glabrous or nearly so; flowers in large panicles, fragrant, white; fruit ovoid, yellow, 3–4 cm. long.—The hogplum is a well-known fruit of tropical America, but inferior in quality to the best forms of *S. purpurea*. The wood is soft but strong and grayish yellow. The name "jobo," most generally applied to this species, is of Carib origin.

The Motul Dictionary lists the "zuliabal," "the yellow *ciruela de Honduras*, which ripens in September and October." This is probably *S. Mombin*. The Kekchí name is "pok."

Spondias purpurea L. *S. Mombin* Standl. CNH. 23: 656. 1923, not L.

Chiabal (Gaumer), *Abal*. Sp. *Ciruela*. Common.—*Spanish plum*. A small deciduous tree with few thick branches; leaflets small, rounded to acute at the apex, pubescent or glabrate; flowers red or purple, in small panicles or clusters along the branches; fruit small, usually red or purple.—This is one of the most common trees of Mexico and Central America, usually abundant in the dry regions. It is often planted for living fence-posts. The wood is soft and light and useless. The fruit is much like a small plum in appearance and flavor, hence it was natural that the early Spaniards should call it "ciruela" ("plum"). The fruits vary greatly in quality, and the best are very good. They are eaten raw, and often long before they are ripe. The young leaves and flowers have an agreeable acid flavor. The rains which come in Yucatan in February and March, when ciruelas are ripe, are called "aguas de ciruelas." A decoction of the leaves and bark is used in domestic medicine as a remedy for fevers and diarrhea.

Cuevas enumerates the following varieties of ciruelas: "tuspana," "huntura," "xho-uel," "cusmín," "ek-abal," "sabac-abal," "aac-abal," "Campech-abal," "keken-abal." Some of these may be forms of *S. Mombin.* From Campeche are reported as superior forms the "chávales" and "ciruelas tuxpanas." The name "jocote," of Nahuatl origin, is used widely in Mexico and Central America. Pérez reports the "zabac-abal" or "ciruela morada"; the "ixnuc-abal," "ciruela grande"; the "kiz" or "kiiz," "una especie de ciruela ordinaria"; the "kinin" or "kinim," "una especie de ciruela del país"; and the "ixpoen," "una especie de ciruela." Some of these may be plants of other families. "Kinim" is reported by another author as one of the woods of Yucatan. The Motul Dictionary lists the "apalac," "ciruelo silvestre y su fruta, la cual es pequeña y dulce como ciruela y la comen los pájaros." This may belong to some other family. In the Pokonchí dialect of Guatemala *Spondias purpurea* is called "rom," "rum," and "cak-rum," and in the Ixil dialect "kinum."

HIPPOCRATEACEAE. Hippocratea Family

Hippocratea celastroides HBK. *H. tenella* Millsp. FMB. 1: 33. 1895, not Miers. *H. Grisebachii* Millsp. FMB. 1: 402. 1898; Millsp. & Loes. BJE. 36: Beibl. 80: 20. 1905, probably not Loes.

Tulubalam (Gaumer), *Tatsi* (Gaumer). Common.—A large woody vine; leaves opposite, persistent, elliptic, acute, crenate-serrulate, glabrous; flowers small, greenish yellow, in slender cymes; stamens 3; fruit a depressed, flat, deeply 3-lobed capsule, the seeds broadly winged.—The Maya name is said to be derived from "tulul," ransom, and "balam," the state following too liberal indulgence in intoxicants. The plant is employed as a calmant for nervous excitation.

Hippocratea yucatanensis Standl. FMB. 8:19. 1930.

Salbeets. Type from Kancabtsonot, *Gaumer 23859;* Izamal, *Gaumer 718;* Chichankanab, *Gaumer 1371;* without locality, *Gaumer 2366, 23994.*—A large woody vine; leaves short-petiolate, elliptic-oval to oblong-elliptic, 5–9.5 cm. long, obtuse, shallowly and remotely crenate-serrate, sometimes sparsely puberulent beneath on the costa, elsewhere glabrous; cymes few-flowered, about half as long as the leaves; petals oval, 4 mm. long.

CELASTRACEAE. Bittersweet Family

Elaeodendron xylocarpum (Vent.) DC.

Zacchechem (Gaumer). Occasional.—A glabrous shrub or small tree; leaves alternate, coriaceous, obovate to elliptic-oblong, acute to rounded at the apex; flowers small, greenish, cymose; fruit drupaceous, yellow, 1–3 cm. long.

Maytenus phyllanthoides Benth.

Frequent along the coast.—A glabrous shrub or small tree 6 m. high or less; leaves alternate, persistent, thick and fleshy, obovate, usually entire; fruit a 3-valved capsule, the 1 or 2 seeds with a fleshy red aril.

Myginda Gaumeri Loes.; Millsp. FMB. 1: 401. 1898.

Cambaochlob (Gaumer). Frequent; endemic; type from Buena Vista Xbac, *Gaumer 1049*.—A shrub 5 m. high, nearly glabrous; leaves opposite, oblong to elliptic, serrulate, leathery; flowers small, cymose, dark red; fruit an obovoid drupe.

Wimmeria obtusifolia Standl. FMB. 8: 20. 1930.

Type, *Gaumer 24259*, without definite locality.—A shrub or small tree; leaves short-petiolate, elliptic or oblong-elliptic, 3.5–4 cm. long, narrowed to the obtuse apex, acute at the base, nearly entire, minutely and sparsely puberulent or nearly glabrous; cymes axillary, much shorter than the leaves; petals 3 mm. long.

SAPINDACEAE. Soapberry Family

Allophylus Cominia (L.) Sw. *Schmidelia Cominia* Sw.

Sp. *Palo de caja*. Frequent.—A shrub or small tree about 6 m. high; leaves 3-foliolate, alternate, the leaflets elliptic or obovate, acute, serrulate, densely pubescent beneath; flowers small, whitish, in long panicled racemes; fruit a red drupe 4 mm. long.

Cardiospermum Corindum L. *C. molle* HBK.

Huayunak; reported also as "uayunak." Sp. *Munditos*. Occasional.—*Balloon-vine*. A slender, usually herbaceous vine; leaves alternate, biternate, the segments dentate or lobate, densely pubescent beneath; flowers small, white, in corymbs, these bearing tendrils; capsule inflated and bladder-like, 2–3 cm. long.

Melicoccus bijugatus Jacq.—This tree is listed by Gaumer with the names "uayum" and "guayo," and it has been reported from the region by others. These names are given also to *Talisia olivaeformis*. It is rather probable that *Melicoccus* is grown somewhere in the Peninsula for its edible fruit, but no specimens are available, and it is possible that the report is an error resulting from an erroneous naming of *Talisia*.

Paullinia Cururu L.

Occasional in forests.—A woody vine; leaflets 3, elliptic or elliptic-lanceolate, glabrate, obtuse to acuminate, serrate; flowers small, white, in axillary racemes; capsule glabrous, not winged.—The vines of this and related genera are used widely in tropical America as barbascos, or fish poisons.

Paullinia fuscescens HBK. *P. curassavica* Millsp. FMB. 1: 33. 1895, not L. *P. fuscescens* f. *glabrescens* Radlk.

Kexak (Gaumer). Common.—A large woody vine; leaves biternate, the leaflets obtusely dentate, usually tomentose or pubescent; flowers greenish white, in long-stalked racemes; capsule winged, the seeds black, with a large white aril.—The tough pliable stems of this and related genera are doubtless used locally as a substitute for rope and twine.

Paullinia pinnata L.

Salatxiu (Petén). Collected in northeastern Petén.—A large vine, glabrous or nearly so; leaves pinnate, the rachis winged, the 5 leaflets ovate to oblong, remotely serrate; fruit not winged.—Called "barbasco" in Tabasco.

Sapindus Saponaria L. *S. Saponaria* var. *inaequalis* Radlk.

Zubul (Gaumer), *Jabónche* (B. H.). Sp. *Jaboncillo. Soapseed tree* (B. H.). Common.—*Soapberry*. A tree of small or medium size; leaves pinnate, the leaflets 5–17, linear-lanceolate to oblong, usually acuminate, entire, glabrate; flowers whitish, in large terminal panicles; fruit a 1-seeded translucent berry.—The wood is dense, light brown, and heavy. The pulp of the fruits, when rubbed in water, gives a lather, like soap, and the fruits are sometimes employed as a substitute for soap.

One of Gaumer's specimens is accompanied by the name "xokencab," which has not been confirmed elsewhere. The Motul Diction-

ary lists the name "zihom" or "zihum," with the definition, "a certain tree bearing a small fruit which serves as soap." This is very probably *Sapindus*.

Serjania adiantoides Radlk.; Millsp. FMB. 1: 403. 1898.

Bui (Gaumer). Endemic; type from Buena Vista Xbac, *Gaumer 1114;* Kancabtsonot, *Gaumer 23542.*—A slender woody vine, the stems hirsute; leaves bipinnate, the leaflets small, obtuse, crenate, hirtellous or glabrate; flowers whitish, in short tendril-bearing racemes.

Serjania atrolineata Sauv. & Wright. *S. scatens* Millsp. FMB. 1: 33. 1895, not Radlk.

Buiche (Gaumer). Reported from the region (collected by Johnson), but the occurrence in the Peninsula is uncertain.

Serjania goniocarpa Radlk. *S. polyphylla* Millsp. FMB. 1: 376. 1896, not Radlk.

Buyak (Gaumer), *Kexak* (Schott). Occasional.—A large woody vine; leaves biternate, the leaflets large, ovate, acute, crenate-dentate, nearly glabrous; fruit (as in the other species) of 3 large samaras.

Serjania mexicana (L.) Willd. has been reported from the region (Millsp. FMB. 1: 33. 1895; specimen collected by Johnson), but the record is doubtful.

Serjania plicata Radlk. Monogr. Serjan. 167. 1875.

Known only from the type, collected by Johnson in Yucatan or Tabasco.—Leaflets large, ovate, crenate-dentate, softly pubescent beneath.

Serjania scatens Radlk.

Reported by Radlkofer from Yucatan or Tabasco; occurrence of the plant in our region uncertain.—Leaflets oblong, remotely crenate, glabrous.

Serjania trachygona Radlk.

Campeche.—Leaves 2 or 3 times pinnate, the leaflets numerous, small, lobed or crenate, pilose on the nerves.

Serjania yucatanensis Standl. FMB. 8: 21. 1930.

Type from Chichankanab, *Gaumer 23676;* apparently frequent; endemic.—A large woody vine; leaflets 3, 5–14 cm. long, obtuse or acutish, crenate-serrate; fruits glabrous, the partition walls broad, the wings 13 mm. long and 10 mm. wide.

Talisia diphylla Standl. FMB. 8: 21. 1930.

Type from Kancabtsonot, *Gaumer 23573.*—A tree 12 m. high; leaves bifoliolate, or the lowest sometimes simple, the leaflets oblong or oblanceolate-oblong, 5–8 cm. long, obtuse, entire, glabrous; panicles terminal, equaling or slightly exceeding the leaves; fruit at first sparsely appressed-pilose but soon glabrate.

Talisia olivaeformis (HBK.) Radlk.

Uayum (Gaumer; reported by Pérez as "uayam"). Sp. *Guayo.* Common.—A tree sometimes 18 m. high; leaves pinnate, persistent, the 4 leaflets elliptic, obtuse or acute, entire, glabrous; flowers yellowish white, in small dense panicles; fruit an elliptic drupe 2 cm. long.—The fruit is edible.

Thouinia paucidentata Radlk.; Millsp. FMB. 1: 403. 1898.

Kanchunup (Gaumer). Common; endemic in the Peninsula; type from Yucatan, *Gaumer 865.*—A tree 9 m. high; leaflets 3, lanceolate or lance-elliptic, acute or acuminate, remotely serrate, barbate beneath along the costa; flowers in raceme-like lateral panicles, whitish; fruit of 2 or 3 samaras 10–12 mm. long.

Urvillea ulmacea HBK.

Puluxtakoc (Gaumer), *Apaac* (Millspaugh). Common.—A woody pubescent vine; leaflets 3, ovate, acute, crenate-serrate, pubescent or glabrate; flowers small, white, racemose; fruit elliptic, 3-winged, 2–3 cm. long.—Locally the plant is reputed to have refrigerant properties.

Cupania guatemalensis is known in British Honduras as "sacpom," "Grande Betty," and "red copal."

RHAMNACEAE. Buckthorn Family

Colubrina ferruginosa Brongn. *Colubrina Colubrina* Millsp. FMB. 2: 69. 1900.

Pimienta-che (a combination of Maya and Spanish). Frequent.—A tree 20 m. high or less; leaves alternate, oblong to ovate, acute,

glabrate; flowers in axillary clusters, the branches densely rusty-tomentose; petals small, yellow; fruit black, subglobose, 7–8 mm. long.—The tree is known in Mexico only from Yucatan.

Colubrina Greggii Wats. *C. ferruginosa* Millsp. FMB. 1: 376. 1896, not Brongn.

Tsulubmai (Millspaugh), *Yaxpucim* (Gaumer), *Pukim, Puciim, Pukin. Pimienta-che* (Seler). Common.—A shrub or small tree 9 m. high or less; leaves alternate, ovate, acute, finely serrate, densely hairy beneath; flowers white.—Cuevas states that the infusion of the leaves is employed as a remedy for dysentery.

Colubrina reclinata (L'Hér.) Brongn.

Without locality, *Gaumer 2373*.—A tree; leaves elliptic to ovate-lanceolate, acute, glabrate, entire; flowers in small axillary clusters, brown-pubescent; fruit globose, red or brownish, 7–9 mm. in diameter.

Gouania lupuloides (L.) Urb. *G. domingensis* L.

Xomak (Gaumer). Common.—A woody vine with tendrils in the inflorescences; leaves alternate, lance-oblong to elliptic, acute, remotely serrate, nearly glabrous; flowers small, whitish, in terminal panicles; fruit dry, 3-winged.—A decoction of the root is used as a gargle for sores in the mouth and throat. The dry stems are, or at least have been, used in Europe and the United States for making dentifrices.

Gouania stipularis DC. has been reported (Millsp. FMB. 1: 33. 1895) upon the basis of a Linden specimen, but the locality is doubtful.

Karwinskia Humboldtiana (Roem. & Schult.) Zucc.

Sp. *Cacachila*. Occasional in dry forests.—A tree sometimes 9 m. high; leaves subopposite, oblong to oval, obtuse or rounded at the apex, glabrous; flowers small, greenish, axillary, umbellate; fruit a blackish drupe 6–9 mm. long.—The tree, which is widely distributed in Mexico, is well known for its poisonous properties, the seeds, if eaten, causing paralysis, especially of the lower limbs, and even death.

Krugiodendron ferreum (Vahl) Urban.

Chimtoc (Schott). Sp. *Quiebrahacha* (B. H.). *Axe-master* (B. H.). Kancabtsonot, *Gaumer 23842;* without locality, *Gaumer 24091*.

British Honduras.—A tree 10 m. high; leaves subopposite, persistent, petiolate, ovate or oval, 2–7 cm. long, obtuse or emarginate, nearly glabrous; flowers in small axillary clusters; fruit a black drupe 5–8 mm. long.—In Mexico this species is known only from the region of Yucatan.

VITACEAE. Grape Family

Ampelocissus acapulcensis (HBK.) Planch. *Vitis acapulcensis* HBK.

Without locality, *Gaumer 23942, 23985, 24034;* Buena Vista, *Gaumer* in 1899.—A very large, woody vine; leaves broadly cordate, deciduous, dentate, often shallowly 3-lobate, rusty-tomentose beneath; flowers dioecious, red, the staminate in large, often very dense cymes; fruit wine-colored, 12–25 mm. in diameter.—The fruit is very acid, and scarcely edible.

Cissus formosa Standl. FMB. 8: 23. 1930.

Type from Suitún, *Gaumer 23389;* Chichankanab, *Gaumer 23713;* without locality, *Gaumer 24312.*—A large woody vine; leaves variable, the upper ones deltoid-rounded, remotely serrate, the lower ones shallowly or deeply 3–5-lobed; flowers deep red; berries purplish red.

Cissus rhombifolia Vahl.

Xtabcanil. Collected at Izamal and Suitún.—A large woody vine; leaves 3-foliolate, the leaflets ovate, rhombic, or elliptic, acute, serrate, pubescent; flowers green or red, in cymes; fruit a small black berry.

Cissus sicyoides L. *Vitis sicyoides* var. *monstrosa* Baker; *Ampelopsis cordata* Millsp. & Loes. BJE. 36: Beibl. 80: 21. 1905, not Michx.

Sp. *Sanalotodo* (Petén). Common.—A large woody vine, often with numerous long cordlike aerial roots; leaves simple, oblong-ovate to rounded, obtuse or acute, serrate, pubescent or glabrous; flowers green; fruit black.—This is one of the most common plants of tropical America. The inflorescences are often much distorted by a smut (*Mycosyrinx Cissi*), so that they suggest a parasite rather than a part of the plant itself. The same smut occurs on *C. trifoliata.* The description of Cuevas' "xtac-canil" agrees well with *C. sicyoides.* He states that the plant is employed, together with "chach u lubte-ak"

and "xich-hulil" as a remedy for hemorrhoids. A *"Cissus compressicaulis"* reported by Aznar, with the name "tabkanil," and the "tabcan," "uvas del monte," listed by Pérez, are probably this or some other species of *Cissus*. *C. sicyoides* is called "bejuco loco" in Tabasco.

Cissus trifoliata L. *Vitis arborea* Millsp. FMB. 1: 307. 1896, not L. *Cissus acida* L.

Bolontibi. Common.—A woody vine; leaflets 3, thick and fleshy, broadly cuneate or rhombic, obtuse, coarsely dentate or lobate, glabrous or nearly so; flowers green; fruit a purple or black berry 5–8 mm. long.—The mucilaginous leaves are crushed and applied as poultices to reduce inflammation, as a remedy for itch and other skin diseases, and for headache, and to mature boils. An infusion of the leaves is given for bronchial affections.

Vitis tiliaefolia Humb. & Bonpl.

Sp. *Uvilla* (Gaumer). Reported from Cozumel Island.—*Wild grape*. A large woody vine; leaves broadly cordate, dentate, usually densely tomentose beneath; flowers small, greenish, in small panicles, fragrant; fruit purple, 6–8 mm. in diameter.—The fruit is small and sour and not very palatable. From sections of the stem a substantial quantity of clear sap may be obtained, to serve as a substitute for water.

This may be the plant reported by Cuevas (Pl. Med. 74. 1913) as "pasas-ak" and "solocchom," although that is said to have large white flowers. The crushed plant is applied as a poultice for erysipelas.

Vitis vinifera L.

Sp. *Uva*. Listed by Gaumer as planted.—The European grape does not thrive in Central America, and I presume it is grown in Yucatan but rarely.

TILIACEAE. Linden Family

Corchorus orinocensis HBK. *C. pilolobus* Millsp. FMB. 1: 307. 1896, not Link.

Putschichibe (Gaumer). Collected only at Izamal.—A branched annual; leaves alternate, lanceolate to ovate, obtuse or acute, serrate, glabrous or nearly so; flowers small, yellow; fruit a linear capsule 3.5–5 cm. long, not 2-horned at the apex.

Corchorus siliquosus L.

Putschichibe (Gaumer). Common.—A slender shrub 1 m. high or less; leaves petioled, mostly ovate; capsule linear, compressed, 4–5 cm. long, 2-horned at the apex.—The stems contain a tough fiber.

This may be the "puschichibe" reported by Cuevas (Pl. Med. 79. 1913), the infusion of whose leaves is a remedy for venereal diseases.

Heliocarpus glanduliferus Robinson.

Chaktolol (Gaumer), *Tolol* (Gaumer). Common.—A shrub or small tree 2–6 m. high; leaves long-petioled, broadly ovate, long-acuminate, dentate, finely stellate-pubescent or glabrate; fruit a small woody capsule 6–7 mm. long, the margin fringed with plumose bristles.

Luehea speciosa Willd. *?L. endopogon* Loes. Repert. Sp. Nov. 12: 226. 1913, not Turcz.

Kazcat (Yucatan, B. H.), *Chacats* (Schott). Sp. *Pepe cacao* (Camp.). Common.—A tree 3–10 m. high; leaves short-petiolate, elliptic or oval, abruptly acuminate, green above, whitish-tomentose beneath with fine stellate hairs; flowers large, white, in axillary cymes; fruit a woody capsule 3–4 cm. long, obtusely 5-angled.—Millspaugh gives the Maya name as "chacah," probably in error.

Muntingia Calabura L.

Sp. *Capolín, Capulín.* Common.—A tree 5–10 m. high; leaves alternate, lance-oblong, acuminate, oblique at the base, dentate, tomentose beneath; flowers white, axillary; fruit a red glabrous berry 1 cm. in diameter, containing very numerous small seeds.—The bark contains a tough fiber. The intensely sweet fruit is edible.

Triumfetta dumetorum Schlecht. *T. semitriloba* Millsp. FMB. 1: 380. 1898, not Jacq.

Ochmul (Gaumer). Sp. *Cadillo.* Common.—A shrub 1–3 m. high; leaves long-petioled, ovate to rounded, acuminate, often lobate, long-pilose with chiefly simple hairs on the upper surface, stellate-hirsute beneath; flowers small, yellow; fruit a small globose hard capsule, covered with stiff barbed spines.—The burlike fruits adhere tenaciously to clothing and to the hair of animals.

Triumfetta semitriloba Jacq. *T. althaeoides* Lam.; *?T. antihaemorrioidica* Dondé, Emulación 3: 18. 1878.

Ochmul. Sp. *Cadillo.* Common.—A shrub, similar to *T. dumetorum,* the leaves stellate-pubescent on the upper surface.—The two species are so much alike that it is certain they are not distinguished locally.

The "muloch" described by Cuevas (Pl. Med. 67, Ilustr. *pl. 17, f. 2.* 1913) probably belongs to this species, although he states that the flowers are white. The plant is stated to have emollient properties, and to be employed as a remedy for "flujo blanco" and for hemorrhoids.

MALVACEAE. Mallow Family

Abutilon Gaumeri Standl. FMB. 8: 24. 1930.

Yaxholche. Endemic; type collected by Gaumer, *No. 24072.*—A shrub; leaves petiolate, broadly cordate-ovate, 3–7 cm. long, acute or acuminate, entire, stellate-tomentose; flowers axillary, solitary or fasciculate, the calyx 7 mm. long.

Abutilon hirtum (Lam.) Sweet.

Mérida, *Schott 121.*—A coarse herb, the stems terete, hirsute; leaves long-petioled, rounded-cordate, dentate, velvety stellate-tomentose; petals 1.5 cm. long.

Abutilon lignosum (Cav.) Don. *A. indicum* Millsp. FMB. 1: 29. 1895, not Don. *?Sida Abutilon* Dondé, Apuntes 60. 1907, not L.

Zacxiu, Mizbil, Yaxholche. Common.—A shrub 1–2 m. high; leaves ovate-cordate, crenate or dentate, densely stellate-tomentose beneath; flowers yellow, 1–1.5 cm. long.—The strong fiber of the stems is used for making twine. The plant has emollient properties, and is used in domestic medicine.

Abutilon trisulcatum (Jacq.) Urban. *Sida triquetra* L.; *A. incanum* Millsp. FMB. 1: 377. 1898, not Sweet.

Sacxiu, Sacmizbil. Common.—A shrub 1–2.5 m. high, densely and finely stellate-tomentose, the stems obtusely 3-angled; leaves broadly cordate, long-acuminate, crenate, whitish; flowers small, yellow, in broad panicles.—This species is used for the same purposes as *A. lignosum,* which it much resembles.

Abutilon umbellatum (L.) Sweet.

Sacxiu (Valdez). Frequent.—A shrub about 1 m. high, the branches terete; leaves broadly cordate, abruptly short-acute, cre-

nate or dentate, green, finely stellate-pubescent; flowers yellow, 1 cm. long.—This may perhaps be the "vara de San Joaquín," reported by Dondé (Apuntes 61. 1907) and by others as "*Sida*" and "*Sida pedunculares*," although the description does not apply in all details.

Abutilon yucatanum Standl. CNH. 23: 751. 1923.

Known only from the type, collected at La Vega, Yucatan, *Goldman* 634.—Leaves broadly cordate, finely stellate-pubescent beneath, entire; petals 4–4.5 cm. long.

Althaea rosea Cav.

Sp. *Vara de San José*. Reported as grown for ornament in Yucatan.—*Hollyhock*.

Anoda cristata (L.) Schlecht. *A. hastata* Cav.; *A. acerifolia* Millsp. FMB. 1: 29. 1895, perhaps not DC. *A. triangularis* Millsp. FMB. 1: 377. 1898, perhaps not DC.

Tzalyaltzai (Gaumer). Sp. *Amapolita, Amapolita morada*. A common weed.—An erect branched annual, nearly glabrous; leaves ovate-triangular, entire, toothed, or lobed; flowers long-peduncled, blue or lilac, 1–1.5 cm. long.—The plant is mucilaginous, and is employed as a remedy for affections of the lungs.

Cienfugosia yucatanensis Millsp. FMB. 2: 74. 1900.

Type collected 6 km. south of Progreso, *Millspaugh 1693;* Chichankanab, *Gaumer 1269*.—A low, erect, sparsely branched, perennial herb; leaves linear or linear-lanceolate, entire, glabrous; flowers axillary, long-pedicellate; petals yellow, 2 cm. long.—Very close to the Cuban *C. heterophylla* (Vent.) Garcke, and perhaps not distinct.

Gayoides crispum (L.) Small. *Abutilon crispum* Medic.

Common.—A procumbent herb; leaves cordate-ovate, acute, crenate; flowers small, white, axillary on slender pedicels; fruit of numerous membranous inflated carpels rounded at the apex.

Gossypium barbadense L.

Tsiin (Gaumer), *Taman*. Sp. *Algodón, Algodonero*. Cultivated and also found escaped.—This species includes most of the sea-island and long-staple cottons, with long, white, easily detachable fiber. Cotton has been grown for export in Yucatan, especially during the

Civil War in the United States, but at present it is grown only upon a reduced scale for home consumption. The use of cotton was well known to the early Mayas, who wove from it their clothing, and used it for cordage. In domestic medicine the cotton plants are employed as emollients and expectorants in the treatment of chest affections and dysentery.

Gossypium hirsutum L. *G. herbaceum* Millsp. FMB. 1: 377. 1898, not L.

Taman. Sp. *Algodón.* Cultivated, and escaped.—Fiber white, not easily detached from the seed.—The short-staple cottons.

Gossypium religiosum L.

Zooh. Sp. *Algodón.* Common.—A wild shrubby plant, the cotton brown or yellowish.—Dondé (Apuntes 56. 1907) states that this is called also "cancachu."

Gossypium Schottii Watt, Wild & Cult. Cotton 206. *pl. 35.* 1907. *G. religiosum* Millsp. FMB. 1: 377. 1898, not L.

Chub (Gaumer), *Xchup* (Schott). Sp. *Algodón amarillo.* Type from Mérida, *Schott 602.*—Perhaps only a form of *G. religiosum;* leaves deeply 3–5-lobed, the lobes narrow, long-attenuate; fiber brown.

The species of *Gossypium* are not well understood, and there is doubt concerning the nomenclature of those occurring in Yucatan.

The following Maya words are reported as relating to the various forms of cotton: "aktetanam," "algodón bueno y blanco de que se hila hilo muy delgado" (Motul Dictionary); "kantux," a kind of cotton (Pérez); "oxil," a cotton ball open or ready to open; "peuil tanam," early cotton; "ppolan," "algodón hueco y fofo" (Motul Dictionary); "tux," cotton seed; "yaaxtux," a kind of cotton (Pérez). It is curious to note that the Maya word for "sheep," formed, of course, after these animals had been introduced by the Spaniards, is "htaman," the word for cotton plus the masculine sign. In the various Mayan dialects of Guatemala the following words are reported as signifying "cotton": "mix," Pokonchí; "nooc," Mame; "teno," Jacalteca; "piitz," Chuje.

Hibiscus brasiliensis L. *H. phoeniceus* Jacq.

Chichankanab, *Gaumer 1439.*—A shrub 1–2 m. high; leaves deltoid-lanceolate or deltoid-ovate, crenate-dentate, glabrate; petals 1–2 cm. long, purple.

Hibiscus clypeatus L. *H. Berlandieranus* Moric.; *H. tubiflorus* Millsp. FMB. 1: 30. 1895, not DC.

Hol (Gaumer). Frequent.—A stout shrub or small tree 6 m. high or less, densely stellate-tomentose; leaves long-petiolate, rounded-cordate, usually angulate, obscurely dentate; petals over 4 cm. long.

Hibiscus esculentus L. *Abelmoschus esculentus* Moench.

Sp. *Quimbombó*. Cultivated as a vegetable, and sometimes found as escaped in old fields; native of the Old World tropics.—*Okra*. The plant is grown commonly in Mexico and Central America for the seed-pods, which, when young and tender, are cooked and eaten as a vegetable, especially in soups and stews. Cuevas (Pl. Med. 82. 1913) states that the plant has sudorific properties, and that an infusion of the roasted seeds is given to produce perspiration in fevers. Gann reports that the "wild okra" or "quimbombo" is esteemed by the Indians as an external application in cases of snake bite.

Hibiscus mutabilis L.

Sp. *Cortejo*. Cultivated for ornament; native of tropical Asia.—A large shrub with 5-angled or 5-lobed leaves; leaves sparsely and finely stellate-pubescent, paler beneath; flowers large, axillary, long-stalked, at first white or pink, changing to deep red.

Hibiscus Rosa-sinensis L.

Sp. *Tulipán*. Grown for ornament; probably native of China.—*Chinese hibiscus*. One of the favorite ornamental shrubs of tropical America, exhibiting many varieties in color and form of the flowers. Valdez states that the plant has sudorific properties. It is probable that the closely related *H. schizopetalus* (Mart.) Hook., with pendent flowers and lobed petals, also is grown in the region.

Hibiscus tiliaceus L. *H. elatus* Sw.

Xholol (Gaumer; reported also as "xholo"). *Blue moho* (B. H.). Common in coastal swamps.—A large shrub or small tree; leaves rounded-cordate, abruptly short-acuminate, entire, finely stellate-tomentose beneath; flowers yellow, 5–6 cm. long.—The bark yields a strong fiber employed by many of the American aborigines for making rope. This is perhaps the Yucatan tree for which the name "majagua" is reported. The name "pox" is applied to this species in Tabasco.

Hibiscus tubiflorus DC.

Chinchimpol (Gaumer), *Xtupkinil* (Millspaugh). Sp. *Campanilla.* Common.—A slender shrub; leaves deltoid-lanceolate or deltoid-ovate, crenate, often lobed, stellate-hispid; flowers axillary, slender-pediceled, red, 2.5–3.5 cm. long.

Malachra alceifolia Jacq.

Sp. *Malva.* An occasional weed.—A coarse hispid annual; leaves long-petioled, ovate to orbicular, mostly angled or lobed, dentate; flowers small, yellow, in heads surrounded by broad bracts.

Malachra capitata L. *M. palmata* Moench.

Sp. *Malva.* Frequent.—A finely stellate-pubescent herb; leaves coarsely dentate or 3–5-lobate; flowers yellow, 1 cm. long.

Malvastrum coromandelianum (L.) Garcke. *M. tricuspidatum* Gray; *Malveopsis spicata* Millsp. FMB. 1: 29. 1895, not Kuntze. *Malva americana* Dondé, Apuntes 56. 1907, Pl. Med. 63, Ilustr. *pl. 28, f. 2.* 1913.

Chikichbe (Gaumer; "path of the garrapata"), *Totopzots* (Gaumer); reported also as "chechebe" and "chichibe." Sp. *Malva.* A common weed.—A strigose, erect, branched, annual or perennial herb; leaves broadly ovate to oblong-ovate, acute or obtuse, serrate, strigose with 4-rayed hairs; flowers small, yellow, in axillary and terminal clusters.—The plant has emollient properties. Its decoction is employed to cleanse sores and as a remedy for dysentery.

Malvaviscus arboreus Cav.

Bizil (Gaumer), *Tamanchich* (Petén). Sp. *Manzanita, Tulipán* (B. H.). Occasional.—A shrub; leaves ovate to broadly cordate, crenate, often shallowly lobed, dentate, densely stellate-tomentose; corolla red, 2.5–3 cm. long; fruit fleshy, red.—The mucilaginous fruit is edible, as in all the species.

Malvaviscus grandiflorus HBK. *M. sepium* Schlecht.; *M. concinnus* Millsp. FMB. 1: 30. 1895, not HBK. *M. Malvaviscus* Millsp. FMB. 2: 73. 1900, not *Hibiscus Malvaviscus* L.

Bizil, Tamanche. Sp. *Manzanita.* Common.—A shrub, much like the preceding, the leaves usually narrower and glabrate.—Some of the Yucatan material is close to *M. Drummondii* Torr. & Gray, to which it has been referred. The species of the genus are highly variable and poorly understood.

The "tamanche" reported by Cuevas (Pl. Med. 94. 1913) is apparently of this genus. He states that the sweet fruit is eaten by the Indians, and that a decoction of the leaves and bark is employed as a remedy for scurvy.

Sida acuta Burm. *S. carpinifolia* L. f.; *S. acuta* var. *carpinifolia* Schum.

Chichibe. A common weed.—An erect herb, stellate-pubescent or nearly glabrous; leaves distichous, short-petioled, lanceolate or ovate, acute, serrate, obtuse at the base; flowers small, white or pale yellow, open in the morning, closing in the afternoon.—One of the common weeds of tropical America. The stems give a strong fiber, which was used formerly in Yucatan for making twine and hammocks. The stems were soaked in water in order to separate the fiber. Like other plants of the family, this species has emollient properties, and has been used locally as a remedy for leucorrhea, nosebleed, and other affections.

Sida ciliaris L. *S. anomala* Millsp. FMB. 1: 378. 1898, not St. Hil.

Occasional.—A small perennial herb, stellate-strigose; leaves oblong, obtuse, serrate; flowers copper-colored.

Sida cordifolia L. *Abutilon sidoides* Millsp. FMB. 1: 377. 1898, not Hemsl. *S. acuta* var. *carpinifolia* Millsp. FMB. 1: 378. 1898, in part, not Schum.

Zacmizbil (Gaumer; reported incorrectly as "xacmixbil"). Common.—A tall stellate-velvety perennial herb or shrub; leaves long-petioled, ovate-cordate, acute or obtuse, dentate; flowers yellow, clustered in the leaf axils and at the ends of the branches.

Sida glabra Mill. *Wissadula tricarpellata* Millsp. FMB. 1: 378. 1898, not Rob. & Greenm.

Kanzacxiu (Gaumer). A slender, erect or decumbent herb; leaves long-petioled, ovate-cordate, acuminate, serrate, sparsely pubescent; flowers axillary, long-pedicellate, yellow.

Sida procumbens Sw. *S. pilosa* Cav.; *S. diffusa* HBK.; *S. supina* var. *pilosa* Millsp.

Xauayxiu (Gaumer; listed also as "hauyxiu"). Common.—A small, annual or perennial herb, prostrate; stems hirsute; leaves

small, ovate-cordate, stellate-pubescent, obtuse, crenate; flowers white or yellowish, axillary on filiform pedicels.

Sida rhombifolia L.

Probably a common weed, but only two Yucatan collections reported.—An herb or shrub, usually 1 m. high or less; leaves short-petiolate, oblong to ovate, obtuse or acute, serrate, minutely stellate-tomentose beneath; flowers small, yellow.—Perhaps the most common weed of Mexico and Central America; usually called "escobilla." It is especially plentiful in pastures, and where it is abundant garrapatas, or ticks, are usually found in profusion. The Kekchí name is "mesbe."

Sida spinosa L. *S. angustifolia* Lam.

Chikichbe-kax (Gaumer), *Chichibe*. Common.—An erect annual, finely stellate-pubescent; leaves short-petioled, linear-oblong to oblong-ovate, crenate; flowers axillary, yellow.—Much like *S. rhombifolia*, with which it probably is confused locally. The Maya name is derived from "chikich," garrapata, "be," path, and "kax," *monte* or woodland, evidently an appropriate name for Sidas of this type.

Sida urens L.

Occasional.—A slender erect hirsute herb; leaves long-petioled, ovate-cordate, long-acuminate, serrate; flowers yellow, in dense clusters.

Wissadula amplissima (L.) R. E. Fries. *W. mucronulata* Gray.

Tsunikax (Gaumer), *Tzimikax, Sacxiu*. Common.—An herb or shrub 1–2 m. high; leaves long-petioled, cordate, acuminate, densely and finely stellate-tomentose beneath, entire; flowers axillary or panicled, on long pedicels, yellow or orange.

BOMBACACEAE. Cotton-tree Family

Bombax ellipticum HBK. *Carolinea fastuosa* DC.; *Carolinea alba* Millsp. FMB. 1: 30. 1895, 1: 309. 1896, not Lodd. *Pachira fastuosa* Decaisne. *P. alba* Dondé, Apuntes 82. 1907, not Walp.

Zackuyche (Gaumer), *Chackuyche* (Gaumer), *Kuyche* (reported also as "xcunche"). Sp. *Amapola, Amapola blanca, Amapola colorada, Mapola* (Petén). Common.—A large unarmed deciduous tree with smooth, gray or greenish bark; leaves pedately 5-foliolate, the leaflets elliptic to obovate, entire, glabrous or nearly so, usually

rounded at the apex; petals 7–13 cm. long; stamens very numerous, purple-red or white; fruit a woody capsule 10–15 cm. long or larger, the seeds covered with dirty-white silk or "cotton."—The tree flowers in January or February, when leafless. The flowers, whose dense masses of stamens suggest powder puffs, are gathered for decorating houses and churches. A decoction of the bark and flowers is employed as a remedy for coughs and catarrh. The wood is soft and of little value. The nectar found in the flowers is placed in the eyes to relieve inflammation.

Ceiba aesculifolia (HBK.) Britt. & Baker, Journ. Bot. 34: 175. 1896. *Bombax aesculifolium* HBK. Nov. Gen. & Sp. 5: 298. 1821. *Eriodendron aesculifolium* DC. Prodr. 1: 479. 1824. *C. pentandra* Millsp. FMB. 1: 30. 1895, not Gaertn.

Piim (Gaumer). Sp. *Pochote.* Common; type from Campeche.—A large tree, sometimes 30 m. high, the trunk armed with short conic spines; leaflets 5–7, elliptic or obovate, acuminate, usually serrate, glabrous; petals 10–12 cm. long, brown-tomentose outside; calyx about 2 cm. long, campanulate; stamens purple-red or white, in 5 fascicles; capsule ellipsoid, 12–18 cm. long, the small seeds imbedded in brownish "cotton."—The tree flowers in winter or spring, when leafless. The soft wood is of little use. One writer reports that in Campeche there are two varieties of this tree (perhaps two distinct species): one whose trunk is thick and very spiny, called "pochote macho"; the other more slender and less spiny, and called "pochote hembra." The abundant silk or cotton surrounding the seeds is used for stuffing cushions, pillows, and mattresses, and a tree is said to yield 15 to 20 pounds. In southern Yucatan large numbers of *mantas* formerly were made from the silk, which was used also as tinder. It is stated that the fiber of *C. pentandra* is useless for this purpose, since it will not catch fire easily. Dondé states that the young tender fruits of *C. aesculifolia* are boiled and eaten as a vegetable, and the seeds also are roasted and eaten. The flowers which fall on the ground are eaten by deer.

Pérez lists the word "cho" as a synonym of "pochote," and the Motul Dictionary gives the same definition for the word "ppupp."

Ceiba pentandra (L.) Gaertn. *C. casearia* Medic.; *Eriodendron anfractuosum* DC.; *Bombax Ceiba* Millsp. FMB. 1: 30. 1895, not L.

Yaaxche (Gaumer), *Yaxche.* Sp. *Ceiba, Ceibo. Cotton-tree* (B. H.). Common.—A large tree, frequently 30 m. high, with broad spreading crown; trunk spiny, greenish; leaflets 5–7, oblong or oblanceolate,

acuminate, entire, glabrous; flowers white or pink, 3–3.5 cm. long; capsule elliptic-oblong, 10–12 cm. long, the small seeds imbedded in silky "cotton."—This is one of the largest and most widely known trees of tropical America. The white wood is too soft and light to be very serviceable, but in the southern part of the Peninsula canoes are sometimes fashioned from the trunks. The trunks often develop large buttresses at the base. The tree is excellent for shade, because of the huge crowns, and it is commonly planted or left to grow about houses or in pastures. The cotton is used locally for stuffing pillows, although that of *C. aesculifolia* is preferred. The cotton of *C. pentandra*, known to the trade as "kapok," is exported in large amounts from the East Indies and West Africa, to be used for stuffing mattresses, life preservers, and other articles, and for insulating purposes. The Pokonchí name of the tree is reported from Guatemala as "nup," and the Kekchí name as "inup." The ceiba tree plays an important part in Maya mythology. An interesting account of its place in Yucatan life was published by Dondé (Apuntes, p. 85).

Ceiba Schottii Britt. & Baker, Journ. Bot. 34: 173. 1896.

Piim (Gaumer), *Kinim* (Gaumer), *Cho* (Gaumer), *Kinin* (Gaumer). Sp. *Pochote*. Endemic; type from Mérida, *Schott 205;* San Pedro, *Gaumer 23368*.—A large tree, often 16–30 m. high, the trunk 40–80 cm. in diameter, prickly; leaflets usually 5, oblanceolate-oblong, entire, mucronate, glabrous; flowers 15–23 cm. long; petals yellow-tomentose outside, white within; calyx 3.5 cm. long, tubular.

Hampea trilobata Standl. CNH. 23: 787. 1923.

Toob-hoob (Gaumer), *Zacitza* (Gaumer). Sp. *Majahau* (Gaumer). *Moho* (B. H.). Endemic in the Peninsula; frequent; type from Apazote, Campeche.—A large shrub or small tree about 6 m. high; leaves long-petioled, shallowly lobed or entire, minutely stellate-pubescent beneath; flowers small, white, clustered in the leaf axils, on long pedicels; fruit a globose capsule 1.5 cm. long.—The name given by Gaumer is evidently a variant of "majagua," applied to various plants of this order whose bark contains strong fiber. Gaumer reports that the bark is much used for tying.

Pachira macrocarpa (Schlecht. & Cham.) Walp. *Carolinea macrocarpa* Schlecht. & Cham.

Kuyche (Gaumer). Sp. *Amapola* (Gaumer), *Zapote reventón* (Maler), *Santo Domingo* (B. H.), *Zapotón* (B. H.). *Provision-tree* (B. H.). No Yucatan specimens seen, but the species is reported

from Quintana Roo and occurs in British Honduras.—A large or small tree, the trunk unarmed; leaflets 6–8, oblong to obovate, obtuse or acutish, entire, glabrous; flowers about 20 cm. long, the stamens purplish; fruit as large as a coconut, hard, the large seeds (1.5 cm. or more in diameter) imbedded in solid flesh.—The tree grows usually in swamps. The large seeds are edible.

Quararibea Fieldii Millsp. FMB. 1: 309. *pl. 19.* 1896.

Sp. *Maha* (Gaumer). Occasional; type from Hacienda de Chabenché, *Gaumer 879;* ranging to Honduras.—A shrub or small tree; leaves oblong-obovate, 15–30 cm. long, acute, entire, glabrous; flowers nearly sessile, solitary, opposite the leaves, white, 5 cm. long; fruit ovoid, indehiscent, 3 cm. long.—The flowers are used for flavoring chocolate. The dried plant has the odor of slippery elm (*Ulmus fulva*).

The Kekchí name of *"Ochroma lagopus"* is reported by Pittier as "puh."

STERCULIACEAE. Cacao Family

Ayenia fasciculata Millsp. ex Standl. FMB. 8: 25. 1930.

Endemic; type from Buena Vista Xbac, *Gaumer 2184;* represented also by *Gaumer 2184* and *666* and *Seler 3980.*—A slender shrub 2 m. high; leaves oblong, 1–3 cm. long, acute, biserrate, glabrate; flowers in axillary 1–3-flowered cymes; sepals 2–3 mm. long; capsule muricate.

Ayenia magna L.

Pixtonak (Gaumer). Common in dry thickets.—A shrub 1–2 m. high; leaves alternate, long-petioled, cordate, acuminate, dentate, pale beneath and finely stellate-pubescent; flowers small, red-brown, axillary, slender-pediceled; fruit a sessile capsule, densely muricate.

Ayenia pusilla L.

Pixtonchich (Gaumer). Common.—Plants low, slender, essentially annual but often becoming somewhat woody; leaves lanceolate to elliptic, 1–5 cm. long, dentate, pubescent or glabrous; capsule stipitate, muricate.

Ayenia yucatanensis Millsp. FMB. 1: 379. 1898.

Type from Buena Vista Xbac, *Gaumer 1052.*—An herb 1 m. high; leaves ovate-lanceolate, acuminate, dentate; capsule stipitate.

Byttneria aculeata Jacq. *B. carthagenensis* Jacq.

Tezak (Gaumer; reported as "xtexak"). Common in thickets.—A shrub, the branches often long and scandent, hollow, armed with stout recurved prickles; leaves lanceolate or ovate, usually crenate or serrate, glabrous or sparsely pubescent, often blotched with silver; flowers small, black-purple, in axillary cymes; fruit a capsule, covered with long spines.—Called "zarza" in Tabasco.

Guazuma ulmifolia Lam. *G. polybotrya* Cav.; *G. tomentosa* HBK.; *G. ulmifolia* var. *tomentosa* Schum.; *G. Guazuma* Cockerell.

Pixoy (Yucatan, B. H.), *Cabalpixoy* (Gaumer). Sp. *Guácima* (Yucatan), *Caulote* (B. H.). *Bay-cedar* (B. H.). Common.—A tree 20 m. high or less; leaves short-petiolate, oblong or ovate, acute, oblique at the base, serrulate, stellate-tomentose beneath; flowers small, whitish or yellowish green, fragrant, in axillary cymes; fruit a globose or oval, woody capsule 2–4 cm. long, densely tuberculate, containing many hard seeds.—One of the most common trees of Central America. The light, fibrous and coarse-grained wood, grayish and slightly tinged with red or pink, is used for many purposes. The bark contains a strong fiber, and is used also in Yucatan for clarifying sirup. The fruit contains a sweet mucilaginous pulp, and is eaten by deer and other animals, and often by people, although the many large seeds are unpleasant. The flowers are reported to yield honey of good quality.

Gaumer gives the name "cabalpixoy" for *Guazuma polybotrya*. Gann states that the fruit and bark of "cabalpixoy" are employed as a remedy for diarrhea and dysentery. "Cabalpixoy" signifies "low pixoy," and the plant may be only one of the low shrubby forms of *Guazuma ulmifolia*. The "cabalpixoy" described and figured by Cuevas (Pl. Med. 20, Ilustr. *pl. 37, f. 1*) may belong to some other group, especially since it is said to have diuretic properties.

Helicteres baruensis Jacq.

Tsutup (Gaumer). Common.—A shrub about 2 m. high; leaves petioled, oval-ovate, obtuse or acute, cordate at the base, denticulate, densely pale-tomentose beneath; flowers axillary, red; fruit hard and woody, cylindric, 4–5 cm. long, spirally twisted, densely tomentose, borne on a gynophore 8–12 cm. long.

Helicteres guazumaefolia HBK. is called "tsubil" in the Kekchí dialect of Guatemala.

Melochia nodiflora Sw.

Frequent.—A slender erect herb, or sometimes shrubby; leaves petioled, ovate, acute, serrate, glabrous or nearly so; flowers pink or purple, in dense axillary clusters; capsule depressed-globose.

Melochia pyramidata L.

Chichibe. A common weed.—An herb or shrub, usually 1 m. high or less; leaves oblong to ovate, acute or obtuse, serrate; flowers axillary, purple, 7 mm. long; capsule pyramidal, glabrous or nearly so.—In general appearance the plant suggests certain species of *Sida* and *Malvastrum,* hence it is natural that it should bear the same Maya name, although belonging to a different family.

Melochia tomentosa L.

Zac-chichibe (Gaumer). A common weed.—An herb or shrub, said to be sometimes 3 m. high; leaves lanceolate or ovate, densely stellate-tomentose; flowers pink to violet, 8–15 mm. long; capsule pyramidal, densely pubescent.

Sterculia apetala (Jacq.) Karst. *S. carthaginensis* Cav.

Sp. *Bellota* (Gaumer). Collected only at Umán.—A large tree; leaves large, long-petioled, 5-lobed, deeply cordate at the base, thick, stellate-tomentose beneath or glabrate; flowers panicled, the calyx corolla-like, 2.5–3 cm. wide, yellow spotted with purple; fruit of several large dehiscent carpels, hispid within; seeds about 2 cm. long.—The seeds (called "castañas" in Tabasco) somewhat resemble chestnuts, and are edible. It is from the Indian name of this tree that the Republic of Panama derives its name.

Theobroma bicolor Humb. & Bonpl.

Pataxte, Balamte. No specimens seen, but the tree grows in Tabasco, and is doubtless in cultivation in our region, if not wild.—A tree; leaves oblong, 15–25 cm. long, abruptly acuminate, obtuse and somewhat oblique at the base, whitish-tomentulose beneath; fruit smaller than in *T. Cacao.*—Pataxte is grown extensively in some parts of Central America as a source of cacao. The Kekchí name is "balam" or "balamte"; the Pokonchí name, "pec."

Theobroma Cacao L.

Xau (Tozzer), *Cacau* (Pérez). Sp. *Cacao.* Cultivated commonly; perhaps native in the more humid parts of the Peninsula.—*Cacao.* The use of cacao as a beverage was well known to the ancient Mayas,

and the plant played an important part in their lives. A special god, Ekchuah, had charge of the cacao plantations. The beverage as used in Yucatan in former times, and even at present, was prepared differently from that made in the United States. It was flavored with various substances, often with chile, and was whipped into a froth with an ingenious wooden beater. Cacao was employed also for flavoring beverages made from maize.

One of the most important applications of cacao was the use of the seeds as money, a widely diffused practice, continued in remote regions until comparatively recent years. The following account of its use in Yucatan is given by a writer in "El Agricultor" (2: 94. 1908):

"Cacao was the money employed by the aboriginal Yucatecans in minor transactions, and its use was continued until something over 60 years ago, when there were introduced lead tokens. The smallest fraction consisted of five grains of cacao, and, above that, ten, fifteen, or twenty. Twenty was the monetary unit, so that an object was worth 'two twenties and five, three twenties and ten,' etc.; and, as the value of cacao was and is highly variable, they increased the number of 'twenties' that were the equivalent of the 'medio real' of silver of the old Spanish money.

"When the price of cacao rose unusually high, three grains formed the 'five' and twelve the 'twenty,' which caused the governor, Don Benito Pérez Valdelomar, to say that only in this land did it ever happen that 'three' were 'five.'

"Any one will recognize the inconvenience of this kind of money, not only because of the difficulty and time required for counting it, but also because of its fragile and perishable nature."

The word "chucua" signifies cacao ready for use, and the Motul Dictionary defines "taacha cauhaa" as cakes of cacao ready for preparing the beverage. "Cocox" is defined as "cacao muy sazonado en el árbol." Some of the Mayan names applied to cacao in Guatemala are the following: "caco," Pokonchí; "cucuh," Maya of Mopán; "kicou," "kicob," Pokonchí.

Waltheria americana L. *W. indica* L.

Zacmizib (Gaumer), *Zacxiu.* Sp. *Malva del monte.* A common weed.—An herb or shrub, usually less than 1 m. high, densely stellate-tomentose; leaves petioled, oblong to ovate, obtuse or rounded at the apex, crenate-dentate; flowers yellow, in dense clusters; fruit a 1-seeded capsule.—The plant is variable in foliage characters. It is used locally as a remedy for rheumatism.

The family Dilleniaceae probably is represented in Quintana Roo. *Curatella americana* L. is called "yaha" and "chaparro" in British Honduras. A "bejuco grueso" reported from Bacalar is perhaps *Tetracera*. The following note is given concerning it: "From sections of the stems good water may be obtained. If a person has been so unfortunate as to lose his way, it is necessary only to notice the first twist that the plant makes, for this is always to the north."

Ouratea nitida, of the family Ochnaceae, is called "tcanlol" in British Honduras. *Sauvagesia erecta* L., of the same family, is represented by *Johnson 71* from "Yucatan and Tabasco." It is reasonable to expect the plant in Yucatan.

The genus *Vismia*, of the family Hypericaceae, probably occurs in Quintana Roo, for it is common in northern British Honduras.

CLUSIACEAE. Clusia Family

Clusia flava Jacq.

Chunup (Gaumer), *Kanchunup* (Gaumer). Frequent; sometimes planted as shade for cattle; flowering in May.—A large glabrous tree with yellow latex; leaves cuneate-obovate, thick, rounded at the apex; flowers yellow, 2–2.5 cm. wide; fruit globose, fleshy.—The bark is said to be used for making pails to hold liquids. The sticky latex, which solidifies upon exposure to the air, is reported as employed to adulterate chicle. The sap is applied to wounds, and the leaves as poultices to relieve headache. The tree is reported, also, as a remedy for syphilitic affections.

Mammea americana L.

Chacalhaaz (Gaumer). Sp. *Mamey, Mamey de Santo Domingo.* Planted as a fruit tree; native of tropical America, but not of Mexico and Central America.—A large glabrous tree with broad, very dense crown, and milky sap; leaves oval or elliptic, rounded at the apex, thick and leathery, with very numerous lateral nerves; flowers axillary, white, the petals 2 cm. long; fruit subglobose, 8–15 cm. in diameter, brownish, the flesh yellow or reddish.—The fruit is of good flavor, somewhat resembling a peach. It is eaten raw or made into preserves and dulces. The wood is hard, durable, and handsomely grained. The Quiché name is "muk."

Rheedia edulis (Seem.) Triana & Planch.

Waika plum (B. H.). Without locality, *Gaumer 24350.*—A small or medium-sized, glabrous tree; leaves lance-oblong, 6–13 cm. long,

obtuse or acute, leathery; flowers clustered in the leaf axils, small, white; fruit oval, yellow, 2.5 cm. long, 1- or 2-seeded.—The fruit is sweet and edible.

TURNERACEAE. Turnera Family

Turnera diffusa Willd. *T. aphrodisiaca* Ward; *T. diffusa* var. *aphrodisiaca* Urban.

Misibcoc (Gaumer). Sp. *Damiana.* Common.—An aromatic much-branched shrub 1 m. high or less; leaves alternate, oblong to ovate, 1–2 cm. long, obtuse or acute, serrate, usually tomentose beneath; flowers yellow, 8–12 mm. long; fruit a small capsule.—A decoction of the leaves and flowers is a local remedy for asthma and bronchitis. In some parts of Mexico the plant enjoys a high reputation because of its supposed aphrodisiac properties.

Turnera ulmifolia L.

Sp. *Clavel de oro* (Gaumer), *Caléndula* (Dondé), *Amaranto* (Dondé). Occasional.—A low herb, simple or sparsely branched; leaves usually ovate, acute or acuminate, serrate, pilose; flowers yellow, 2–3 cm. long.

Erblichia odorata Seem., which grows in British Honduras, is said to bear in Guatemala the Kekchí name "konop."

BIXACEAE. Anatto Family

Bixa Orellana L.

Kuxub. Sp. *Achiote* (of Nahuatl derivation). Common; sometimes cultivated.—*Anatto.* A shrub or small tree, usually 6 m. high or less; leaves alternate, broadly ovate, acuminate, entire, minutely lepidote beneath; flowers pink, in terminal panicles; fruit a globose or ovoid capsule 2–3.5 cm. long, usually covered with soft slender spines; seeds numerous, with a fleshy, bright orange covering.—From the fruit is obtained an orange-red dye used locally for coloring rice and other articles of food. The dye is used in America and Europe for coloring cheese and butter, fabrics, and varnishes. By some of the American aborigines it was employed for painting the body, and the Mayas used it for painting pottery. The plant is employed locally as a remedy for dysentery, and the seeds as an antidote for poisoning by seeds of *Jatropha Curcas* or by *Manihot.* "Ciui" is the

dye in the form of small cakes, as it is prepared for use. The Kekchí name for the plant is "xayau"; the Chuje name "oox"; the Jacaltecan name "ox."

COCHLOSPERMACEAE. Cochlospermum Family

Amoreuxia palmatifida Moc. & Sessé.

Zacyab (Gaumer). Progreso, *Gaumer 1155;* Izamal, *Gaumer* in 1904.—An herb about 40 cm. high, nearly glabrous, sparsely branched; leaves alternate, long-petiolate, palmately 5-lobed nearly to the base, the lobes obovate, dentate, rounded at the apex; flowers large, yellow, in terminal racemes; fruit a large pendulous smooth capsule containing numerous seeds.—The occurrence of this plant in Yucatan is of special interest, because the nearest other locality at which it is known to occur is far northward.

Cochlospermum vitifolium (Willd.) Spreng. *C. hibiscoides* Kunth; *Maximilianea vitifolia* Krug & Urb.

Chum (Gaumer; reported also as "chuun"), *Chimu* (Seler). Sp. *Madera de pasta* (Yucatan), *Pochote* (B. H.). Common.—A small tree with red-brown branches; leaves alternate, long-petiolate, cordate at the base, palmately 5–7-lobate, the lobes acuminate, serrate, glabrate; flowers bright yellow, 10 cm. broad, in terminal clusters; fruit a 5-valved obovoid capsule 7–8 cm. long; seeds numerous, covered with cotton-like white hairs.—The wood is soft and brittle. The bark contains a tough fiber. The tree is a very showy one in flower, when it is usually leafless. The Kekchí name is "tsuyuy."

VIOLACEAE. Violet Family

Corynostylis arborea (L.) Blake. *Calyptrion Hybanthus* Millsp.

Reported as collected in Yucatan by Johnson, but the locality is doubtful.—A scandent shrub; leaves alternate, oval to elliptic-ovate, crenulate, glabrous; flowers whitish, racemose, spurred; fruit a woody capsule.

Hybanthus longipes (Dowell) Standl. *Ionidium brevicaule* Millsp. FMB. 1: 311. 1896, not Mart.

Without locality, *Gaumer 855;* Buena Vista, in 1899, *Gaumer.*—A low perennial herb, the stems mostly simple, sometimes somewhat woody at the base, densely leafy; leaves slender-petioled, ovate or elliptic, obtuse or acute, sparsely pubescent; flowers axillary, long-pediceled.

Hybanthus riparius (HBK.) Standl. *Ionidium oppositifolium* Millsp. FMB. 1: 311. 1896, not R. & S.

Occasional.—A simple or branched, erect annual, sparsely pubescent or nearly glabrous; leaves opposite and alternate, short-petioled, lanceolate to ovate, acute or acuminate, serrulate; flowers small, green.

Hybanthus yucatanensis Millsp. FMB. 1: 404. 1898. *Bumelia microphylla* Millsp. FMB. 1: 376. 1898, in part, not Griseb.

Sacbacelcan (Gaumer; "white snake bone"), *Ta* (Seler). Endemic in the Peninsula; known from Campeche, Yucatan, and Quintana Roo; type from Izamal, *Gaumer 469*.—A shrub 2.5 m. high with angled branches, the branchlets spinose; leaves alternate or fascicled, rhombic-lanceolate, obtuse or acute, crenate-serrulate, glabrous; flowers small, whitish, fascicled in the leaf axils.

Viola odorata L.

Sp. *Violeta*. Sometimes cultivated; native of Europe.—*Sweet violet*.

Viola tricolor L.

Sp. *Violeta*. Cultivated for ornament; native of Europe.—*Pansy*. Usually called "pensamiento" in Central America, where it is one of the most popular of ornamental plants, at least at middle and higher elevations.

FLACOURTIACEAE. Flacourtia Family

Casearia nitida (L.) Jacq.

Iximche (B. H.). Common.—A shrub or small tree 1–5 m. high; leaves short-petiolate, elliptic to oblong, pellucid-punctate, acute, nearly glabrous; flowers small, white, in axillary corymbs; fruit an obovoid berry about 8 mm. long.—Called "cafetillo" in Tabasco.

Laetia americana L.

Without locality, *Gaumer 24084, 24313, 24335*.—A glabrous tree; leaves elliptic or elliptic-lanceolate, entire or nearly so, pellucid-punctate, acute; flowers small, white, in axillary corymbs; fruit a globose berry 2–4 cm. in diameter.—In Mexico this tree is known only from our region.

Prockia crucis L.

Izamal, *Gaumer* in 1888.—A shrub or small tree; stipules large and foliaceous; leaves alternate, petioled, ovate or elliptic, acute or acuminate, serrulate, pilose; flowers in short terminal racemes; fruit a globose berry.

Samyda yucatanensis Standl. CNH. 23: 842. 1923. *S. serrulata* Millsp. FMB. 1: 380. 1898, not L. *S. rosea* Millsp. & Loes. BJE. 36: Beibl. 80: 21. 1905, not Sims.

Putsmucuy (Gaumer), *Habalkax* (Seler). Sp. *Aguja de tórtola.* Common; endemic; type collected in Yucatan, *Schott 603;* Izamal, *Gaumer 1063, 858, 699;* Ebula, *Gaumer 23279;* Xkombec, *Seler 4033;* Itzimná, *Seler 3945;* Xcanchakan, *Seler 3877;* Mérida, *Schott 603b, 603a, 603;* Chichankanab, *Gaumer 2001;* without locality, *Gaumer 24015.*—A shrub or tree 10 m. high or less; leaves obovate or oval, rounded or obtuse at the apex, entire or obscurely serrulate, densely tomentose or velutinous beneath; flowers small, axillary, cream-colored, sessile; fruit globose, 12 mm. in diameter, fleshy, opening at the apex.

Xylosma flexuosa (HBK.) Hemsl.

"Yucatan," without definite locality, *Johnson;* perhaps not from Yucatan.—A shrub or small tree armed with long, slender, often branched spines; leaves short-petiolate, obovate to elliptic-ovate, obtuse to acuminate, serrate or subentire; flowers small, fasciculate, the slender pedicels glabrous.—This is, presumably, the plant listed by Millspaugh (FMB. 1: 32. 1895) as *Myroxylon nitidum* (Schlecht.) Millsp.

Xylosma Hemsleyana Standl. *X. elliptica* Hemsl.

Nuum-tsu-tsui (Petén). Yaxmuxan, Petén, *Cook & Martin 195.*—A shrub or small tree armed with long spines, those of the trunk usually branched; leaves elliptic to obovate, rounded to acute at the apex, crenate-serrate, glabrous or nearly so; flowers small, greenish white, axillary, the pedicels pubescent; fruit a small globose berry.—The specimen is sterile and the specific determination uncertain. This is probably the plant listed by Pérez as "num" and "num-tzutzuy." He states that the Indians use the spines as pins.

Zuelania Roussoviae Pittier.

Tamay (Gaumer). Sp. *Volador.* Frequent.—A tree 10–20 m. high; leaves deciduous, oblong to oblong-oval, acute or obtuse,

tomentose beneath; flowers small, greenish white, in dense lateral fascicles; fruit a fleshy subglobose capsule 3.5 cm. in diameter.—A decoction of the bark is employed as a remedy for amenorrhea. The wood is said to be of little value.

CARICACEAE. Papaya Family

Carica Papaya L. *Papaya vulgaris* DC.

Put, Chich-put (a wild form). Sp. *Papaya* (fruit), *Papayo* (plant). Planted and also wild.—*Papaya.* The papaya is one of the best and most esteemed of tropical fruits, and is planted everywhere in Middle America. The fruits are eaten raw or made into dulces. They vary greatly in shape, size, and flavor, those of wild plants being small and scarcely fit for food. The plants are pistillate and staminate, hence many of them are sterile. They are grown from seeds, and fruit in a remarkably short time. The roots are said to be used in Yucatan for the preparation of dulces, and the leaves are employed by laundresses to whiten clothes. The milky sap, which contains an enzyme, papain, resembling animal pepsin in its digestive action, is administered as a remedy for dyspepsia, and also to expel intestinal parasites.

Pileus mexicanus (A. DC.) Standl., comb. nov. *Jacaratia mexicana* DC.; *Pileus heptaphyllus* Ramírez; *Leucopremna mexicana* Standl.

Kunche (Gaumer); reported as "kumche" and "cuumche." Sp. *Bonete.* Frequent in Yucatan and Campeche.—A tree 12 m. high or less with few thick branches; leaves deciduous, clustered at the ends of the branches, with 5–7 obovate acuminate leaflets; flowers dioecious; fruit 15 cm. long or more, 5-angled, pendent, green or yellow.—The fruit varies greatly in shape. It is usually eaten cooked or as a salad, and also is made into dulces.

LOASACEAE. Loasa Family

Gronovia scandens L.

Lalmuch. Common.—A small herbaceous vine, covered with stinging hairs; leaves alternate, long-petioled, cordate at the base, deeply palmate-lobed, the lobes acuminate; flowers small, yellow-green, in bifurcate cymes.—The hairs sting the flesh quite as painfully as any nettle.

Mentzelia aspera L. *Anoda parviflora* Millsp. FMB. 1: 377. 1898, not Cav.

Tzayuntzay (Gaumer), *Tsootscab* (Schott). Sp. *Pegarropa.* Frequent.—A pubescent weedy branched herb, the hairs hooked at the tip; leaves alternate, hastate or lanceolate, acuminate, serrate; flowers solitary, small, pale yellow; fruit a cylindric capsule.—The leaves adhere to clothing by the hooked hairs, hence the name "pegarropa."

Various exotic species of *Begonia* doubtless are grown for ornament, but no information is available concerning them. Many species of the genus are native in tropical America.

PASSIFLORACEAE. Passionflower Family

Passiflora ciliata Dryand.

Pochkak (Gaumer). Sp. *Pasionaria, Flor de la pasión, Flor de clavo.* Frequent.—An herbaceous vine with tendrils; leaves deeply 3-lobed, glandular-ciliate, nearly glabrous; flowers axillary, greenish, subtended by 3 large bracts, these much divided into filiform gland-tipped segments.—The plant is said to have narcotic and sedative properties, producing deep and restful sleep. It is employed as a remedy for insomnia, convulsions in children, and hysteria.

Passiflora coriacea Juss.

Xicozotz (Petén). Collected at Puerto Morelos and Chichankanab, and in Petén.—A glabrous vine; leaves peltate, transversely oblong, the ends acute, coriaceous, the petiole with 2 glands near the apex; flowers small, not bracted.

Passiflora foetida L.

Tuuboc (Gaumer). Common.—An herbaceous vine, ill-scented; leaves broadly ovate, shallowly 3-lobed, densely soft-pubescent; flowers white or purplish, subtended by an involucre of finely dissected bracts; fruit ovoid, 2–4 cm. long.—Called "jujito peludo" in Tabasco.

Passiflora gossypiifolia Desv.

Pochil (Gaumer). Frequent.—A large herbaceous vine; leaves 3-lobed, the lobes broad, obtuse or acute, densely soft-pubescent; involucral bracts dissected into glandular segments.

Passiflora Palmeri Rose.

Chichankanab, *Gaumer 23671.*—A woody vine; leaves ovate, shallowly 3-lobate, very densely velvety-pilose; flowers scarlet, subtended by 3 finely dissected bracts.

Passiflora pulchella HBK.

Occasional.—A small glabrous vine; leaves as broad as long, rounded at the base, shallowly bilobate, with a broad rounded sinus, the lobes obtuse or rounded; flowers bluish, subtended by 3 entire bracts.—This plant, like the other species, is employed in domestic medicine.

Passiflora serratifolia L.

Sp. *Jujito amarillo* (Campeche). Near Atasta, Campeche, *Rovirosa 129.*—An herbaceous vine; leaves elliptic-oblong, acuminate, serrulate, puberulent; flowers long-stalked, subtended by 3 entire long-acuminate bracts.—The Kekchí name is "karanilicho."

Passiflora suberosa L.

Coceh (Gaumer). Frequent.—A slender vine, herbaceous or with corky woody stems; leaves oblong to ovate, entire or 3-lobate, pubescent or glabrous; petiole with 2 glands near the apex; flowers small, greenish, not bracted.—The Maya name "coceh" belongs properly to *Smilax.* The leaves of some forms of this *Passiflora* suggest closely those of *Smilax mexicana.* It may be that the same vernacular name is employed, on this account, for both plants, but it is more probable that the name "coceh" has been given in error to the *Passiflora.*

Passiflora yucatanensis Killip in Standl. FMB. 8: 26. 1930.

Type from Cozumel Island, *Gaumer 101.*—A large vine; petioles glandless; leaf blades 4–5 cm. long, 2-lobed or obscurely 3-lobed at the apex, rounded or truncate at the base, glabrous above, puberulent beneath; flowers 3–3.5 cm. wide.—This has been reported (FMB. 1: 134. 1895) as *P. Andersonii* DC.

CACTACEAE. Cactus Family

Cereus Donkelaarii Salm-Dyck. *C. grandiflorus* Millsp. FMB. 1: 35. 1895, not L. *Selenicereus Donkelaarii* Britt. & Rose.

Chacuob (Gaumer), *Zacbacelcan* (Gaumer). Sp. *Pitajaya, Pitaya.*—Common; apparently endemic.—A large vine, the stems slender,

terete, 9–10-ribbed, the spines 1–4 mm. long, in clusters of 10–15; flowers white, 18 cm. long; fruit large, edible.—The handsome flowers open at night and close in the forenoon. They are employed in local medicine as a heart stimulant.

Here belongs the "tzakam-ak," "zacamak," or "tsacam" reported from Yucatan; at least the description agrees well with this species. The fruit is described as large and red, with white pulp.

It is probable that *Cereus grandiflorus* L. is grown for ornament. Its spines are very slender, while those of *C. Donkelaarii* are short and stout.

Cereus flagelliformis (L.) Mill. *Aporocactus flagelliformis* Lem.

Canchoh (Gaumer). Sp. *Flor de látigo.* Common in cultivation, and also reported as wild or naturalized.—Stems slender, weak, usually prostrate or climbing, terete, with 10–12 low ribs, the spines short and slender; flowers red, 7–8 cm. long; fruit globose, red, spiny, 1 cm. in diameter.

Cereus Gaumeri (Britt. & Rose) Standl., comb. nov. *Cephalocereus Gaumeri* Britt. & Rose, Cactaceae 2: 47. 1920.

Endemic in the Peninsula; type from Yucatan, *Gaumer 23934.*—Plants 6 m. high, with few columnar branches; ribs 8 or 9, the spines 5 cm. long or less, the upper areoles bearing clusters of long white wool; flowers light green, 5–7 cm. long; fruit 4.5 cm. long.—This is probably the "xne-mis" ("cat's tail") reported by Casares, who describes the fruit as purple and edible.

Cereus griseus Haw. *Lemaireocereus griseus* Britt. & Rose.

Progreso, *Gaumer 23259.*—Plants 8 m. high or less, branched, the stems columnar, with 8–10 ribs, the spines 4 cm. long or less; flowers pinkish, 7 cm. long; fruit globose, spiny, 5 cm. in diameter, edible, with red pulp.—Here probably belongs the "xne-bob," described by Casares.

Cereus pentagonus (L.) Haw. *Acanthocereus pentagonus* Britt. & Rose.

Numtzutzuy (Gaumer); reported also as "nuntzutzuy." Sp. *Tuna silvestre.* Common.—Stems climbing, 3–5-angled, rarely 6–8-angled, the spines 4 cm. long or less; flowers 14–20 cm. long, white; fruit large, red.—The fruit is edible. The spines are sometimes used as a substitute for pins.

Cereus undatus Haw. *Cereus trigonus* Dondé, Apuntes 48. 1907. *Hylocereus undatus* Britt. & Rose.

Chacuob (Gaumer), *Zacuob* (Gaumer), *Uob, Uoo, Uo.* Sp. *Pitaya, Pitahaya, Pitajaya, Pitahaya roja, Pitahaya blanca.* Common, growing over walls and trees.—A large vine, the stems usually 3-angled, the spines 2–4 mm. long; flowers 30 cm. long, white; fruit 10–12 cm. in diameter, red, covered with large scales, with white pulp and many small black seeds.—The flowers open at night. The fruit is very good to eat. It is reported that some forms have yellow fruit. A sirup made from the red fruit is employed for coloring candy and pastry.

Cereus yucatanensis Standl., nom. nov. *Pachycereus Gaumeri* Britt. & Rose, Cactaceae 2: 71. 1920. *C. pecten-aboriginum* Millsp. FMB. 1: 311. 1896, not Engelm.

Culul, Sac-culul, Chac-culul. Frequent; endemic; type from Cenote Hodo, *Gaumer 23778.*—Plants 2–7 m. high, the branches columnar, 4–7-angled, the spines 1–3 cm. long; flowers yellowish green, 5 cm. long.—The fruit is said to be white or red, and good to eat.

There is reported by Gaumer a *Cereus* known as "kanzacam." This has not been identified.

Epiphyllum strictum (Lem.) Britt. & Rose. *Phyllocactus strictus* Lem.

Sp. *Santa Rita.*—Grown for ornament, and apparently also native.—Plants normally epiphytic, the stems flat, 5–8 cm. wide, coarsely serrate, unarmed; flowers 15 cm. long, white; fruit globose, 4–5 cm. in diameter.

Mammillaria Gaumeri (Britt. & Rose) Standl., comb. nov. *Neomammillaria Gaumeri* Britt. & Rose, Cactaceae 4: 72. 1923.

Poltzacam (Gaumer). Endemic; type from sand dunes at Progreso, *Gaumer 23349.*—Plants cespitose, the stems globose, coarsely tuberculate, the spines 5–7 mm. long; flowers creamy white, 10–14 mm. long; fruit clavate, red, 2 cm. long.—This is probably the plant reported by Casares with the name "pol-mis."

Mammillaria yucatanensis (Britt. & Rose) Standl., comb. nov. *Neomammillaria yucatanensis* Britt. & Rose, Cactaceae 4: 114. 1923.

Type from Progreso, *Gaumer 24367.*—Stems globose, 8–10 cm. in diameter, tuberculate, the spines 5–14 mm. long; flowers small, rose; fruit oblong, red.

Nopalea cochenillifera (L.) Salm-Dyck.

Pacam. Said to be cultivated occasionally.—Plants tall, branched, often 2–3 m. high; joints oblong, sometimes 50 cm. long; spines none or minute; flowers red, 5.5 cm. long; fruit red, 5 cm. long.—This species formerly was grown extensively in many parts of Mexico and Central America as a food plant for the cochineal insect, from which was obtained a handsome red dye. This coloring substance must have been well known to the ancient Mayas. "Mukay" is the Maya equivalent of cochineal. "Yiihpakam" is defined (Motul Dictionary) as the cochineal plant "ya de sazón para que salgan y nazcan en el los gusanillos de la grana." The Pokonchí word for *Nopalea* is "chuh."

Nopalea Gaumeri Britt. & Rose, Cactaceae 1: 216. 1919.

Zacam. Endemic; type from Sisal, *Gaumer 23250;* collected also at Tsilám.—Plants 3 m. high; joints linear-oblong or oblanceolate, 6–12 cm. long; spines very numerous, 5–20 mm. long; flowers red, 4 cm. long, the petals erect, not spreading as in *Opuntia;* fruit red, 3 cm. long.—It is rather doubtful whether this is distinct from *N. inaperta.*

Nopalea inaperta Schott ex Griffiths, Monatsschr. Kakteenk. 23: 139. 1913.

Zacamtsotz (Gaumer). Endemic in Yucatan.—Plants said to reach a height of 5–7 m.; joints flat, obovate or oblong, 6–17 cm. long, the spines numerous, 2 cm. long or less; flowers red, 4 cm. long; fruit red, 1.5 cm. long.

Gaumer lists "mehenzacamtsotz" as a species of *Nopalea.*

Opuntia Dillenii (Gawler) Haw. *O. Tuna* Millsp. FMB. 1: 35. 1895, 2: 78. 1900.

Pakan, Yaaxpakan (Gaumer). Sp. *Nopal* (the plant; Nahuatl), *Tuna* (the fruit). Common.—*Prickly pear.* A low or tall plant with large, oblong to obovate joints covered with long spines; flowers yellow; fruit purplish.—There are doubtless several other Opuntias in the region, but they have not been collected or studied. The fruits of some of the plants are good to eat, and the young joints are cooked and eaten. The joints are heated and applied as poultices to relieve pleurisy.

Casares reports a "xiknal-tzacam" which is either *Opuntia* or *Nopalea.*

Pereskia aculeata Mill.

Without locality, *Gaumer 24374;* probably cultivated.—A shrub, erect or clambering, armed with slender spines; leaves lanceolate to ovate, acute, fleshy; flowers pale yellow or pinkish, 2.5–4.5 cm. broad; fruit yellow, obconic.—Because of their normal leaves, the Pereskias are very different in aspect from other cactuses.

The Maya name "tsunya" has been reported as applied to a plant of this genus.

Pereskia scandens (Britt. & Rose) Standl., comb. nov. *Pereskiopsis scandens* Britt. & Rose, Cactaceae 4: 252. 1923.

Endemic; type from Izamal, *Gaumer.*—A slender vine, the spines 5 mm. long; leaves ovate, acute; flowers yellow; fruit 5–7 cm. long.

LYTHRACEAE. Loosestrife Family

Ammannia coccinea Rottb.

Izamal, *Gaumer 592.*—A small erect glabrous branched herb of wet soil; leaves opposite, linear, clasping by an auricled base, entire; flowers small, purple, clustered in the leaf axils; fruit a small capsule.

Cuphea balsamona C. & S.

Occasional.—A low weedy pubescent annual; leaves small, oblong to ovate-oblong, acute, entire, opposite; flowers small, axillary, purple.—One of the common weeds of tropical American lowlands.

Cuphea Gaumeri Koehne, BJE. 29: 154. 1900. *C. trinitatis* Millsp. FMB. 1: 311. 1896, not DC. *Parsonsia Gaumeri* Standl. CNH. 23: 1017. 1924.

Frequent; endemic; type from Buena Vista Xbac, *Gaumer 785.*—An erect annual, glandular-pubescent; leaves sessile, oblong to elliptic, obtuse or acute, ciliolate; flowers axillary and in terminal racemes, purple.

Lagerstroemia indica L.

Sp. *Astronómica, Júpiter.* Commonly planted for ornament; native of the Old World.—*Crape myrtle.* A shrub with alternate, entire, nearly glabrous leaves; flowers white, pink, or purple.

Lawsonia inermis L. *L. alba* Lam.

Sp. *Reseda francesa.* Grown for ornament; native of Asia and Africa.—*Henna.* A glabrous shrub with opposite oblong entire

leaves; flowers small, yellow, sweet-scented, in terminal panicles.—The plant furnishes a red dye which is much used, especially in the Orient, for coloring the hair and nails red, yellow or black.

PUNICACEAE. Pomegranate Family

Punica Granatum L.

Yanuco (Gaumer; probably not Maya). Sp. *Granada* (fruit), *Granado* (plant). Grown commonly for its fruit; native of the Mediterranean region.—*Pomegranate.* A shrub or small tree with opposite entire leaves and showy red flowers.—Both sweet and sour varieties are grown in Yucatan, but the pomegranate is little planted in most parts of tropical America. In Yucatan the root is employed as an agent for expelling tapeworms.

COMBRETACEAE. Combretum Family

Bucida Buceras L.

Pucte. Bullet-tree, Bully-tree (B. H.). Common in the southern part of the Peninsula.—A large tree with gray bark, often armed with spines; leaves crowded at the ends of the branches, obovate, rounded or retuse at the apex, glabrate; flowers small, green, in spikes; fruit a drupe 5 mm. long.—The wood is hard, close-grained, yellowish brown, and heavy. The leaves are often colored bronze or red.

Combretum erianthum Benth.

Campeche.—A large woody vine; leaves opposite, oblong to elliptic, obtuse or acute, entire, brown-lepidote beneath; flowers small, spicate; fruit coriaceous, 2 cm. long, broadly winged.

Conocarpus erecta L. *C. sericea* Forst.; *C. erecta* var. *arborea* Griseb.; *C. erecta* var. *sericea* Griseb.; *C. erecta* var. *argentea* Millsp.; *C. erecta* var. *procumbens* Jacq.

Kanche ("snake-tree;" Gaumer), *Taabche* (Gaumer; also written "tabche"). Sp. *Botoncillo, Mangle, Mangle prieto. Buttonwood* (B. H.). Common along the coast, in and near mangrove swamps, and about Lake Chichankanab.—*Button mangrove.* A shrub or small tree, occasionally prostrate, sometimes 20 m. high; leaves alternate, obovate to elliptic, obtuse or acute, entire, leathery, glabrous or sericeous; flowers very small, in panicled conelike heads.—The wood is hard, close-grained, grayish or yellowish brown, and heavy. The tree is very variable as to size and pubescence.

Laguncularia racemosa (L.) Gaertn.

Zacolcom (Gaumer). Sp. *Mangle bobo* (Yuc.), *Mangle blanco* (B. H.). *White mangrove* (B. H.). Common along the coast in and near mangrove swamps.—A glabrous tree 20 m. high or less; leaves opposite, oblong to oval, rounded at the apex, entire, very thick and fleshy; flowers small, in clustered spikes; fruit a leathery 10-ribbed reddish drupe 1.5 cm. long.—The wood is hard, strong, dense, and yellowish brown.

Terminalia Catappa L. *Buceras Catappa* Hitchc.

Sp. *Almendro.* Planted as a shade tree; native of the East Indies.—*Indian almond.* A large tree with radiate whorled branches; leaves large, obovate, rounded and abruptly pointed at the apex, nearly glabrous, often tinged with red; flowers small, green, in spikes; fruit an obovoid drupe 4–7 cm. long.—The wood is hard, close-grained, and red-brown. The kernels of the seeds are good to eat.

Terminalia Hayesii Pittier is called "guayabo" and "nargusta" in British Honduras. The Mayan name of Guatemala is "canxun."

RHIZOPHORACEAE. Mangrove Family

Rhizophora Mangle L.

Tapche (Gaumer; reported also as "tabche"). Sp. *Mangle, Mangle colorado. Red mangrove* (B. H.). Common in coastal swamps.—*Mangrove.* A glabrous tree; leaves opposite, elliptic or obovate, leathery, entire.—The wood is hard, close-grained, strong, and dark red-brown. The tree is notable for its stiltlike prop-roots. The bark is rich in tannin, and is used locally, especially by the Indians, for tanning skins. It is employed also as a remedy for lepra, diarrhea, and dysentery.

MYRTACEAE. Myrtle Family

Calyptranthes Millspaughii Urban, Symb. Antill. 7: 294. 1912. *Chytraculia Chytraculia* Millsp. FMB. 2: 80. 1900, not *Myrtus Chytraculia* L.

Type collected on Cozumel Island, *Millspaugh 1537;* also in British Honduras.—A small tree; leaves opposite, short-petiolate, oval-elliptic to elliptic-oblong, acuminate, coriaceous, glabrous; flowers small, white, in terminal many-flowered ferruginous-pubescent corymbs.

Eugenia axillaris (Sw.) Willd.

Sp. *Granada cimarrona* (B. H.), *Vaina de espada* (B. H.). Occasional.—A shrub or small tree with pale branches; leaves opposite and pellucid-punctate (as in other plants of the family), elliptic, obtuse or acutish, glabrous; flowers small, white, clustered in the leaf axils; fruit a globose red aromatic berry 1 cm. in diameter.

If the description is correct, the "xich-huhil" of Cuevas (Pl. Med. 108. 1913) must be closely related to *Eugenia axillaris*. Cuevas states that it is employed, together with three other plants, as a remedy for hemorrhoids.

Eugenia Gaumeri Standl. FMB. 8: 28. 1930.

Type from Kancabtsonot, *Gaumer 23843;* without locality, *Gaumer 23984, 24073.*—Leaves short-petiolate, oblong or elliptic-oblong, 4–5.5 cm. long, narrowed to the obtuse apex, acute at the base, strigose when young but soon glabrate; flowers fasciculate in the leaf axils or short-racemose, the slender pedicels 6–15 mm. long; ovary densely whitish-strigose.

Eugenia Jambos L.

Sp. *Pomarrosa.* Reported as planted in Yucatan; native of Asia.—*Rose-apple.* A large tree with dense crown; leaves narrowly lanceolate, 12–20 cm. long, leathery; flowers greenish white, 1.5 cm. wide; fruit globose, 3–4 cm. in diameter, yellowish, tinged with pink.—This is one of the handsomest of tropical shade trees. The flesh of the fruit is firm and sweet, with a flavor like that of rose-water.

Eugenia mayana Standl. CNH. 23: 1042. 1924.

Sacloob (Gaumer). Endemic; type from Izamal, *Gaumer 714;* Chankon, *Becquaert 64;* without locality, *Gaumer 24123, 24215.*—A shrub or small tree with pale bark; leaves small, obovate or oblong-obovate, rounded or obtuse at the apex, puberulent; flowers white, in axillary clusters.

Eugenia rhombea (Berg) Krug & Urb.

Without locality, *Gaumer 24044.*—A shrub or small tree with pale branches; leaves ovate or elliptic, 3–6 cm. long, acuminate, leathery, glabrous; fruit globose, 1.5 cm. in diameter.

Eugenia yucatanensis Standl. FMB. 8: 28. 1930.

Type from Izamal, *Gaumer* in 1888.—Leaves short-petiolate, elliptic, 5.5–8 cm. long, abruptly obtuse-acuminate, rounded or very obtuse at the base, nearly glabrous; flowers in short racemes, short-pedicellate; ovary densely whitish-strigose.

Pimenta officinalis Lindl. *P. vulgaris* Lindl.

Sp. *Pimienta, Pimiento de Tabasco. Allspice, Pimento* (B. H.). Cultivated in Yucatan and doubtless native in the southern part of the Peninsula.—A small or medium-sized, very aromatic, nearly glabrous tree; bark pale, smooth; leaves petioled, oblong to oval-oblong, 9–20 cm. long, obtuse or rounded at the apex; flowers small, white, in axillary cymes; fruit globose, 5–8 mm. in diameter.—The dried green fruit is the allspice of commerce. The tree is a delightful one because of the highly agreeable fragrance exhaled by all parts. The odor is retained indefinitely in herbarium specimens, a very unusual condition.

Psidium Guajava L. *P. pomiferum* L.

Pichi, Coloc (Campeche). Sp. *Guayaba* (fruit), *Guayabo* (tree); word of Antillean origin. Common.—*Guava.* A shrub or small tree with scaly, pale brown bark.—The guava is one of the common fruit trees of tropical America, its abundant seeds germinating everywhere. The fruit, which varies greatly in size, shape, and color, is esteemed most highly for making the marmalade known as guava paste, a common dessert. A decoction of the leaves is a local remedy for diarrhea, and the crushed leaves are applied to ulcers. The Motul Dictionary gives the Maya name of the tree and fruit as "pachi." In the Ixil dialect of Guatemala it is called "ch'amxuy"; in Pokonchí "cak"; and in Kekchí "patá."

Psidium Sartorianum (Berg) Niedenzu. *Calycorectes mexicana* Millsp. FMB. 1: 312. 1896, not Berg.

Pichiche (Gaumer). Frequent in brushlands.—A tree 15 m. high with smooth gray bark; leaves ovate, short-petioled, ovate, acuminate, 2–4 cm. long, glabrous; flowers small, axillary, white; fruit globose, 2 cm. in diameter, greenish yellow or red, containing few seeds.—The fruit is juicy and has a spicy subacid flavor. Cuevas states that the crushed leaves are applied to wounds to stop the flow of blood, and to heal them.

MELASTOMACEAE. Melastome Family

Tibouchina longifolia (Vahl) Baill., *Conostegia xalapensis* (Bonpl.) Don, and *Clidemia petiolaris* (Schlecht. & Cham.) Triana (a synonym of *C. Deppeana* Steud.) have been reported by Millspaugh (FMB. 1: 36. 1895), but the records need verification. Gaumer reports the name of *Conostegia xalapensis* as "capulincillo." The family is abundantly represented in northern British Honduras, and several species must be found in Quintana Roo.

ONAGRACEAE. Evening-primrose Family

Jussiaea suffruticosa L.

Mazcabche (Gaumer). Sp. *Cornezuelo cimarrón.* Only one collection seen, from Xcholac, but the plant is probably not rare in the region, since it is one of the most common weeds of Mexico and Central America.—An erect herb 1 m. high or less, pubescent; leaves alternate, lanceolate to ovate, entire, petioled; flowers solitary, axillary, bright yellow; fruit a cylindric capsule.—In Tabasco the plant is called "flor de camarón."

Some of the South American Fuchsias probably are grown for ornament in Yucatan.

UMBELLIFERAE. Parsley Family

Anethum graveolens L.

Sp. *Eneldo.* Cultivated; native of Europe.—*Fennel.* A glabrous annual, the leaves dissected into filiform segments; flowers yellow.—The seeds are used for flavoring food.

Apium graveolens L.

Sp. *Apio.* Grown as a vegetable.—*Celery.*

Arracacia xanthorrhiza Bancroft.

Sp. *Apio.* Listed by Gaumer as in cultivation; native of northern South America.—A tall coarse herb with large bipinnate leaves.—The tuberous roots are cooked and eaten.

Coriandrum sativum L.

Sp. *Culantro.* Cultivated; native of the Old World.—*Coriander.* The seeds are used to flavor food. The name "saquil" is reported from Guatemala for the plant.

Daucus Carota L.

Sp. *Zanahorria.* Grown commonly as a vegetable; native of Europe and Asia.—*Carrot.*

Foeniculum vulgare Hill.

Sp. *Hinojo.* Cultivated and rarely escaping; native of Europe.—*Dill.* A large glabrous perennial, the leaves divided into long capillary segments; flowers yellow.—The seeds are employed for seasoning food.

Hydrocotyle bonariensis Lam. *H. yucatanensis* Millsp. FMB. 2: 81. 1900.

Occasional in Yucatan and Campeche.—A glabrous creeping perennial herb of wet soil; leaves long-petiolate, peltate, orbicular, crenate; flowers small, green, pediceled, in branched umbels.—The type of *H. yucatanensis* was collected at Progreso, *Millspaugh 1677.* This is perhaps the plant reported by Aznar as *Hydrocotyle umbellata* L., with the vernacular name "coronilla de San Antonio."

Hydrocotyle verticillata Thunb. *H. prolifera* Millsp. FMB. 1: 381. 1898, not Kell.

Pacanle (Gaumer). Xcholac, *Gaumer 445.*—Similar, the flowers sessile or nearly so, the whorls forming an interrupted spike.

Petroselinum sativum Hoffm. *Apium Petroselinum* L.

Sp. *Perejil.* Cultivated; native of southern Europe.—*Parsley.* The plant is employed generally for flavoring food. It is used locally as an emmenagogue, and for nephritis and dropsy.

Pimpinella Anisum L.

Sp. *Anís.* Cultivated; native of the Mediterranean region.—*Anise.* Used commonly for flavoring food.

LENNOACEAE. Lennoa Family

Lennoa madreporoides Llave & Lex. *L. caerulea* Millsp. FMB. 1: 382. 1898, perhaps not Fourn.

Buena Vista Xbac, *Gaumer 1116.*—A low fleshy herb, parasitic upon the roots of other plants, without chlorophyll; leaves reduced to scales; inflorescence branched, the flowers densely clustered at the ends of the branchlets; calyx deeply 8-cleft; corolla small, tubular-funnelform, violaceous.

THEOPHRASTACEAE. Theophrasta Family

Jacquinia aurantiaca Ait. *J. armillaris* Millsp. FMB. 1: 392. 1898, not Jacq. *J. ruscifolia* Flores, Agricultor 10⁷: 9. 1923.

Muyche (Gaumer), *Chacsic* (Flores), *Tcan-sik* (B. H.). Common. —A shrub or small tree; leaves oblong to elliptic, obtuse or acute, tipped with a sharp stiff spine; flowers orange, 8 mm. long, in corymb-like racemes; fruit globose, hard, 2 cm. in diameter.—This is perhaps the *Jacquinia* reported from Petén by Maler, with the name "chac-sinkin." In Tabasco it is called "siche" and "flor de San Antonio." The plant is reported to be employed as a remedy for whooping cough. The stiff corollas are strung on cords and used for decorations, and they are described as having been employed in ancient times for decorating the Maya temples.

Jacquinia axillaris Oerst.

Chacsik (Petén). Quintana Roo and Petén.—A shrub or small tree; leaves lance-oblong, stiff, acute, spine-tipped; flowers orange, 7–10 mm. long, in racemes.

Jacquinia flammea Millsp. ex Mez in Engl. Pflanzenreich IV. 236a: 40. 1903. *J. aristata* Millsp. FMB. 1: 36. 1895, not Jacq. *J. armillaris* Millsp. FMB. 1: 312. 1896, not Jacq.

Zinkinkax (Gaumer), *Chaczinkinkax* (Gaumer); reported as "chac-tsicikax." Common; endemic; type from Tsilám, *Gaumer 531*.—A shrub or small tree; leaves obovate, rounded at the apex, sometimes pungent-tipped; racemes corymb-like, the flowers orange, 8–10 mm. long.—This species is employed like *J. aurantiaca*. In some regions the Jacquinias are used commonly as fish poisons.

MYRSINACEAE. Myrsine Family

Ardisia escallonioides Schlecht. & Cham. *Icacorea paniculata* Sudw.

Zachoclub (Gaumer), *Xooknum* (Seler). Frequent.—A shrub or tree, 6 m. high or less; leaves alternate, obovate or elliptic, obtuse or acute, entire, glabrous; flowers small, pink, in panicled racemes; fruit globose, 4–8 mm. in diameter, black, 1-seeded, juicy.—The wood is hard and brown. The fruit in this genus is sweet and edible.

Ardisia revoluta HBK. *Icacorea revoluta* Standl.

Frequent.—A glabrous shrub or small tree; leaves elliptic or obovate, 9–19 cm. long, obtuse or acute; flowers pink, in panicled racemes; fruit 4–5 mm. in diameter.

Parathesis crenulata Hook. f. (collected by Johnson) and *P. corymbosa* Hemsl. (collected by Linden) have been reported from Yucatan, but the localities are doubtful.

EBENACEAE. Ebony Family

Diospyros anisandra Blake, Proc. Biol. Soc. Washington 34: 44. 1921.

Xnobche (Gaumer). Endemic; type from Suitún, *Gaumer 23308;* Kancabtsonot, *Gaumer 23863;* without locality, *Gaumer 24030;* Suitún, *Gaumer 23307;* Xanaba, *Gaumer 688.*—A shrub 3 m. high, flowering in May; leaves alternate, obovate, 2.5–4.5 cm. long, retuse, glabrate; flowers small, axillary, yellow; calyx (as in other species) 4–5-lobed.

Diospyros cuneata Standl. FMB. 8: 33. 1930.

Endemic; type, *Gaumer 24098;* Izamal, *Gaumer 700;* without locality, *Gaumer 24211, 23955.*—Leaves short-petiolate, cuneate-obovate, 4–8.5 cm. long, obtuse or rounded at the apex, cuneately narrowed to the base, beneath strigillose when young but soon glabrate; flowers in 3–4-flowered axillary cymes; calyx 4-lobed, 3.5 mm. long; corolla 6–7 mm. long, densely sericeous; fruit glabrous.

Diospyros Ebenaster Retz. *D. ebeneum* Millsp. FMB. 1: 382. 1898, not Koen.

Tauch (Gaumer). Sp. *Zapote negro, Ebano.* Planted as a fruit tree, and perhaps native.—A medium-sized tree, flowering in April; leaves oblong to elliptic, sometimes 30 cm. long, leathery, obtuse or acutish, glabrous; fruit subglobose, green, 7.5 cm. or less in diameter, the pulp soft, black; seeds 4–10, large, compressed.—The fruit is eaten; but it is not very good, and it is certainly most unattractive in appearance. A decoction of the leaves is used as an astringent and as a remedy for malaria. This species has been listed from Yucatan as "*Diospyros obtusifolia.*" The wood is an ebony, being black and very hard.

Maba albens (Presl) Hiern.

Kancabtsonot, *Gaumer 23862;* without locality, *Gaumer 24089.*—A large shrub or small tree; leaves oblong to obovate, 3–7 cm. long, obtuse or rounded at the apex, or sometimes acute, densely pubescent; flowers small, axillary, pedicellate or nearly sessile; calyx 3-lobate.

SAPOTACEAE. Sapodilla Family

Achras Zapota L. *Sapota Achras* Mill.

Ya. Sp. *Zapote, Chicozapote.* Abundant in the southern part of the Peninsula; often planted as a shade and fruit tree.—*Sapodilla.* A large tree, sometimes 30 m. high, with dense crown; leaves clustered at the ends of the branches, petioled, oblong to elliptic, obtuse, entire, glabrous when mature; flowers small, white, solitary in the leaf axils, brown-tomentose; fruit ovoid or globose, 6 cm. or more in diameter, containing 1–5 seeds.—The wood is fine-grained, hard, reddish, easy to work and polish, and little molested by insects. It is used for posts, rafters, railroad ties, and cabinetwork, and it was the chief wood utilized in the ancient Maya temples. Bows, also, were fashioned from it. The fruit is highly esteemed by many persons. Its flesh is yellowish brown, translucent, and sweet.

The most important product of the tree is the gum or chicle obtained from the milky latex, and used as the basis of chewing gum. The latex is collected from slashes made in the trunk during the rainy season, and it must be boiled and beaten until it thickens. *Chicle blanco* or *chicle virgen* is obtained from the fruits. Chicle is the chief article of export from the southern part of the Peninsula. Mexico is reported to produce an average of 2,812,320 kilograms per year, and Quintana Roo alone has exported from 169,000 to 1,028,000 kilograms a year.

Chicle or "tsicte" (from the Nahuatl, "tsictli") was well known to the ancient Mayas, being chewed to quench thirst, and also as an accompaniment of meals. It was prepared in "barras" about 10 cm. long and 1 cm. thick, wrapped in banana leaves, a form in which it is still offered for sale locally. The export of chicle is an industry of recent development.

The gum is employed also for filling cavities in teeth. The pulverized seeds are applied to the bites and stings of poisonous animals.

The Motul Dictionary defines "zaya" as "chicozapote," and also as atole made from the fruits in times of famine. The latex is called "itz"; when boiled and ready to chew, "cha." The Nahuatl name of the tree is "chictzapotl" (hence "chicozapote") or "xicontzapotl"; the Quiché name is "tzaput."

Bumelia retusa Sw. *B. buxifolia* Millsp. FMB. 1: 376. 1898, not Willd. *B. glomerata* Millsp. FMB. 1: 376. 1898, not Griseb. *B.*

microphylla Millsp. FMB. 1: 376. 1898, in part, not Griseb. *B. obtusifolia* var. *buxifolia* Miq. & Eichl.

Putsmucuy (Gaumer), *Xpetcitam* (Gaumer), *Zactsitsilche* (Gaumer), *Mulche* (Gaumer). Common.—A shrub or small tree, armed with stout spines; leaves short-petiolate, broadly obovate or rounded, rounded or emarginate at the apex, leathery, brown-sericeous or glabrate beneath; flowers small, pediceled, clustered in the leaf axils; fruit subglobose, fleshy, 8–10 mm. long.

Bumelia spiniflora A. DC.

Calotmul, *Gaumer 1313.*—A very spiny shrub or small tree; leaves cuneate-oblanceolate to rounded-obovate, rounded at the apex, glabrous; flowers small, pediceled, fascicled in the leaf axils; fruit black, 1–2 cm. long, the flesh sweet and edible; wood hard, weak, light brown.

Calocarpum mammosum (L.) Pierre. *Lucuma mammosa* Gaertn.

Chacalhaas. Sp. *Mamey, Mamey colorado.* Planted as a fruit tree; perhaps native in the region.—*Sapote.* A large tree; leaves deciduous, obovate, 10–30 cm. long, short-petioled, rounded to acute at the apex, thin, glabrate; flowers white, subsessile on leafless twigs; fruit globose or ovoid, 8–20 cm. long, brown, the flesh pink or reddish; seed 1, about 8 cm. long, smooth, polished.—This is one of the common fruit trees of tropical America. The sweet fruit is eaten raw or made into preserves. The wood is fine-grained, hard, and compact. The seeds are pulverized, mixed with oil, and applied to the scalp to promote growth of the hair. The Quiché name of this species is "zaltulul." The usual name for the fruit in Mexico and Central America is "zapote."

Chrysophyllum Cainito L.

Sp. *Caimito* (of Antillean derivation), *Cayumito.* Planted commonly, and perhaps native in the southern part of the Peninsula.—*Star-apple.* A large or medium-sized tree with dense crown; leaves short-petioled, oval to oblong, abruptly acute or short-acuminate, densely covered beneath with shining brown hairs; flowers small, pediceled, clustered in the leaf axils; fruit globose, yellow, green, or purple, with sweet milky flesh, containing several large seeds.—The tree is grown generally in tropical America for its sweet fruit. The rather coarse-grained, purplish gray or nearly black, and heavy

wood is sometimes used for construction purposes. The name star-apple is derived from the fact that when the fruit is cut transversely the narrow seeds are seen radiating like the points of a star.

Chrysophyllum mexicanum Brandeg. *C. Cainito* Millsp. FMB. 1: 382. 1898, not L. *C. monopyrenum* Millsp. FMB. 2: 82. 1900, not Sw.

Chiceh (Gaumer; Yuc., B. H.). Sp. *Cayumito silvestre. Wild star-apple* (B. H.). Frequent.—A large tree; leaves pale-silky beneath; flowers smaller than in *C. Cainito*, the corolla glabrous; fruit 1-seeded.

Dipholis salicifolia (L.) A. DC.

Txitxya (Gaumer), *Tsiisyab* (Gaumer), *Sac-chum* (Gaumer); listed erroneously as "xac-chum." Frequent.—A tree 12 m. high, unarmed; leaves slender-petioled, oblong or lanceolate, 6–12 cm. long, acute or acuminate, glabrate; flowers small, whitish, densely clustered in the leaf axils; fruit subglobose, black, 8 mm. in diameter.—The hard, strong, fine-grained, dark brown or blackish wood is used for construction purposes.

Lucuma campechiana HBK. Nov. Gen. & Sp. 3: 240. 1819. *L. multiflora* Millsp. FMB. 1: 313. 1896, not A. DC.

Kanizte. Sp. *Mamey de Campeche.* Cultivated and perhaps native; type from Campeche.—A tree 15 m. high; leaves slender-petioled, oblanceolate to oblong-obovate, large, acute or obtuse, glabrous or nearly so; flowers clustered in the leaf axils, brown-hairy.—The fruit is edible, but no information is available as to its quality.

Lucuma hypoglauca Standl.

Choch (Gaumer). Sp. *Zapote blanco.* Cultivated as a fruit tree, and perhaps native.—A medium-sized tree; leaves large, petioled, oblanceolate-oblong, obtuse or rounded at the apex, thinly grayish-sericeous beneath; flowers small, clustered in the leaf axils; fruit subglobose, 10 cm. in diameter, with a thick hard brownish-green shell, the pulp acidulous, of agreeable flavor.—This species is known also from Salvador.

Sideroxylon Gaumeri Pittier, CNH. 13: 460. *f. 86.* 1912. *S. Mastichodendron* Millsp. FMB. 1: 313. 1896, not Jacq.

Subul (Schott). Sp. *Ebano amarillo.* Endemic; type collected at Izamal, *Gaumer 763;* Calotmul, *Schott* in 1866; Izamal, *Gaumer 23228.*—A large glabrous tree; leaves long-petioled, oblong, obtuse; flowers small, clustered on old branches; fruit ellipsoid, 1-seeded, 2 cm. long.—The fruit is edible.

PLUMBAGINACEAE. Plumbago Family

Plumbago capensis Thunb.

Sp. *Embeléso, Jazmín azul.* Cultivated for ornament; native of South Africa.—*Plumbago.* A shrub, often scandent, with showy, pale blue flowers.—This has been listed from Yucatan as *P. caerulea.*

Plumbago scandens L.

Chabak (Gaumer), *Chapak* (Seler); reported incorrectly as "xcabaac," "chakhak," and "tsaimentsai." Sp. *Hierba de alacrán.* A common weed.—Plants suffrutescent, erect or subscandent; leaves alternate, oblong to ovate, narrowed at the base, acuminate, entire; flowers white, spicate, the calyx glandular.—The juice of the leaves blisters the skin quickly. It is employed as a remedy for itch and other skin diseases, and is reported to be administered as an emetic or purgative.

OLEACEAE. Olive Family

Jasminum grandiflorum L.

Sp. *Jazmín, Jazmín de olor.* Listed by Gaumer as cultivated for ornament; native of southern Asia.—*Royal jasmine.* A nearly glabrous vine with pinnate leaves and fragrant white flowers.

Jasminum Sambac (L.) Soland.

Listed by Gaumer as in cultivation; native of the East Indies.—*Arabian jasmine.* An erect pubescent shrub with ovate leaves and white flowers.—This species is planted for ornament generally in Central America.

LOGANIACEAE. Logania Family

Spigelia Anthelmia L.

Occasional.—An erect annual, glabrous or nearly so, simple or branched; leaves mostly clustered at the top of the stem, lanceolate, entire, acuminate; flowers small, purplish white, in one-sided spikes; fruit a small tuberculate capsule.

GENTIANACEAE. Gentian Family

Eustoma exaltatum (L.) Griseb.

Occasional in sandy places near the coast or on lake shores.—An erect glabrous glaucous herb; leaves opposite, sessile, oblong, obtuse or acute, entire; flowers few, blue or nearly white, 2–4 cm. long.

Leiphaimos mexicana (Griseb.) Miq. *Voyria mexicana* Griseb.

Yaxcabah, *Gaumer 2454;* Chichankanab, *Gaumer 2177;* Buena Vista Xbac, *Gaumer 1105.*—A slender white saprophyte 10–20 cm. high, the stems simple, the leaves reduced to scales; flowers few, small, white, in a terminal cyme.

APOCYNACEAE. Dogbane Family

Cerbera Manghas L. *C. Odollam* Gaertn.

Izamal, cultivated, *Gaumer 23179.* Native of tropical Asia.

Echites microcalyx A. DC. *E. subsagittata* Millsp. FMB. 1: 382. 1898, not R. & P.

Common.—A slender woody vine with milky sap; leaves opposite, oblong to elliptic, entire, often cuspidate at the apex, cordate or hastate at the base, usually pubescent beneath; flowers yellow, 2.5–3.5 cm. long, in axillary racemes; fruit of 2 slender pods 8–20 cm. long.

A sterile specimen collected in Petén, apparently an *Echites* close to *E. Rosana* Donn. Smith, bears the name "corrimiento-ak," which would indicate that it is one of the innumerable remedies for venereal diseases.

Echites pinguifolia Standl. FMB. 8: 35. 1930.

Type, *Gaumer 815,* without locality.—A slender woody vine; leaves ovate to elliptic, long-acuminate, usually rounded at the base, densely and minutely soft-pubescent beneath; calyx lobes lance-attenuate; corolla tube very slender, 18 mm. long, the throat funnelform, 1.5 cm. long, the broad lobes about 1 cm. long.

Echites torosa Jacq. *E. microcalyx* Millsp. FMB. 1: 312, in part. 1896, not A. DC. *E. torulosa* Millsp. FMB. 1: 383. 1898, not L.

Occasional.—A slender glabrous woody vine; leaves lance-oblong, obtuse or acutish, obtuse or rounded at the base; flowers yellow, the corolla tube 6 mm. long.

Echites umbellata Jacq.

Frequent.—A glabrous vine; leaves thick and fleshy, ovate or oval, rounded at the base; corolla white or pale yellow, the tube 5 cm. long; follicles 15–20 cm. long, thick and stout.

Echites yucatanensis Millsp. ex Standl. FMB. 8: 35. 1930.

Endemic; type from Chichankanab, *Gaumer 1979;* Tical, *Gaumer 23816;* without locality, *Gaumer 1979, 24039.*—A slender glabrous woody vine; leaves broadly ovate to elliptic-oblong, 6–10 cm. long, acuminate, usually pandurate and shallowly or deeply constricted below the middle, or even shallowly trilobate; calyx lobes lanceolate, long-attenuate; corolla 5–5.5 cm. long; follicles 19–21 cm. long.

Forsteronia spicata (Jacq.) Meyer.

Reported as collected at Campeche by Houstoun.—A woody vine; leaves oblong or oval, abruptly short-acuminate, entire, pubescent or glabrate; flowers small, white, in dense spikelike cymes.

Lochnera rosea (L.) Reichenb. *Vinca rosea* L.; *Catharanthus roseus* Don.

Sp. *Vicaria.* A frequent weed; often planted for ornament; probably not native.—A glabrate erect herb; leaves oblong to elliptic, obtuse; flowers axillary, 2.5–3 cm. long, white or pink.

Macrosiphonia macrosiphon (Torr.) Heller was reported from Yucatan by Millspaugh (FMB. 1: 383. 1898, as *M. Berlandieri* Gray), but the specimen, collected by Schott, doubtless was obtained in northern Mexico. There are no locality data on Schott's original label.

Nerium Oleander L.

Sp. *Narciso, Laurel rosa.* Planted commonly for ornament; native of the Mediterranean region.—*Oleander.* A shrub or small tree with white or pink, often double flowers.

Plumeria alba L.

Zacnicte (Gaumer). Sp. *Flor de Mayo.* Planted and perhaps native.—A small or medium-sized tree with thick branches and copious milky sap; leaves alternate, oblong-linear, 16–30 cm. long, obtuse or acute, finely tomentose beneath; flowers white, in large terminal cymes; fruit of 2 thick follicles 20 cm. long.—The frangipani trees are very showy when in flower. The corollas are strung in

chains which are used as decorations in houses and churches, a custom which doubtless dates from ancient times. The latex is employed as a drastic purgative.

"Nicte" is a generic term for the Plumerias. The name "flor de Mayo" is applied because the plants flower about the month of May.

The *Plumeria bicolor*, with white flowers, reported by Dondé (Apuntes 33. 1907) may be *P. alba*. The plant reported by Cuevas (Pl. Med. 69, Ilustr. *pl. 11, f. 1*) as "nictechom" and "flor de zopilote" seems to be a white-flowered *Plumeria*, possibly *P. alba*, or perhaps *P. acutifolia* Poir., which, however, is not represented by specimens from this region. The latex is used as a remedy for toothache and pains in the gums.

Plumeria multiflora Standl. FMB. 8: 33. 1929.

Type from Kancabtsonot, *Gaumer 23880;* also in northern British Honduras.—A shrub or small tree with thick branchlets; leaves narrowly oblong-cuneate, 6–9.5 cm. long, broadly rounded and apiculate at the apex, glabrous above, densely and minutely tomentose beneath; calyx 1.5 mm. long, the lobes rounded; corolla 4 cm. long, the lobes equaling the tube.

Plumeria pudica Jacq.

Xtuhuy (Gaumer). Sp. *Flor de Mayo.* Planted for ornament.—Flowers yellow, the corolla remaining closed, and never opening as in the other species.

Plumeria rubra L. *P. purpurea* Dondé, Apuntes 33. 1907.

Zabacnicte (Gaumer), *Chacnicte, Nicte.* Sp. *Flor de Mayo.* Commonly planted for ornament; probably not native.—A shrub or small tree; leaves elliptic-oblong to narrowly obovate, 15–40 cm. long, acute or obtuse, glabrous or nearly so; corolla red or purple, 3.5–5.5 cm. long.—An extract of the plant is reported to have laxative properties and is employed in the treatment of venereal diseases, and to expel intestinal parasites. Externally the extract is applied to cure cutaneous diseases, such as itch, and syphilitic sores. The name "cumpap" is reported for this species from Guatemala.

Dondé reports (Apuntes 33. 1907) *P. tricolor* R. & P. as in cultivation, and called "flor de Mayo" and "ensalada." In this species the corolla is red and white outside and yellow within.

Rauwolfia heterophylla R. & S.

Cabamuc (Gaumer), *Cabatmuc, Chacmuc* (Cuevas), *Chacmuc-ak* (Cuevas). Common.—A shrub with milky sap, usually less than 1 m. high; leaves in whorls of 3–5, elliptic-oblong to obovate, acute, glabrous or nearly so; flowers small, greenish white, in few-flowered cymes; fruit a drupe 6–8 mm. in diameter, red, changing to purple-black at maturity.—The latex is applied to granulated eyelids, and it is reported to have emetic, cathartic, expectorant, and diuretic properties. It is employed for treating dropsy and various other diseases.

Rhabdadenia cordata (Mill.) Miers.

Frequent.—A large vine, somewhat pubescent or glabrate; leaves opposite, elliptic to oval, acute or obtuse and cuspidate-acuminate; rounded or subcordate at the base; flowers yellow, 6–7 cm. long, calyx lobes acuminate.

Rhabdadenia paludosa (Vahl) Miers. *Echites biflora* Millsp. FMB. 1: 382. 1898, not Jacq.

Frequent in coastal swamps.—A glabrous woody vine; leaves oblong, obtuse or rounded at the apex, petiolate, acutish at the base, thick and fleshy; flowers pinkish white, 6–7 cm. long; calyx lobes obtuse; fruit of 2 long slender follicles.

Stemmadenia insignis Miers.

Xlaul (Gaumer). Sp. *Laurel.* Occasional; cultivated and perhaps native; type from Mérida, *Schott 430.*—A small glabrous tree about 6 m. high; leaves opposite, elliptic or obovate, 8–18 cm. long, petiolate; flowers pure white, the corolla tube 5 cm. long; fruit of 2 fleshy follicles 5 cm. long.—Schott states that the seeds are eaten greedily by birds.

Tabernaemontana alba Mill.

Reported from Campeche.—A shrub with milky sap; leaves opposite, ovate-oblong, short-acuminate; flowers in cymes; corolla tube 6 mm. long, the anther tips exserted.—This is probably not distinct from *T. amygdalifolia.*

Tabernaemontana amygdalifolia Jacq. *T. acapulcensis* Miers; *T. citrifolia* Millsp. FMB. 2: 83. 1900, not L.

Utsubpek (Gaumer); reported also as "utsupek," "utsuppek," and "chusumpek." Sp. *Jazmín de perro, Olfato de perro.* Common.—A glabrous shrub 3 m. high or less; leaves elliptic to lance-oblong,

acute; flowers fragrant, the corolla white, the tube 8–15 mm. long; anther tips exserted; fruit of 2 thick fleshy follicles 4–6 cm. long.—An infusion of the leaves is administered as a laxative in the treatment of biliousness.

Tabernaemontana citrifolia L.

In forest, Esperanza, Campeche, *Seler 4007*.—A glabrous shrub or small tree; leaves petiolate, oblanceolate-oblong to elliptic, 6–20 cm. long, acute or abruptly short-acuminate; flowers white, in dense or lax cymes, the tube 6–8 mm. long; anther tips included.

Tabernaemontana litoralis HBK.

Type from Campeche.—A glabrous shrub; leaves elliptic-oblong, acute; flowers 5 cm. long; stamen tips included.

Thevetia Gaumeri Hemsl. in Hook. Icon. Pl. 16: *pl. 1517*. 1886. *T. spathulata* Millsp. FMB. 1: 383. 1898.

Acitz (Gaumer; "raw-milk"). Frequent; endemic; type from Cozumel Island, *Gaumer 7* in 1885.—A tree 6–12 m. high, the trunk sometimes 20 cm. in diameter, glabrous throughout; leaves oblanceolate, obtuse, leathery, shining; corolla yellow, 3.5–5 cm. long; fruit drupaceous, 3 cm. broad, 2 cm. long.—The type of *T. spathulata* is from Mérida, *Schott 321*.

Thevetia nitida (HBK.) A. DC. has been reported from Yucatan, but the record is doubtful.

Thevetia peruviana (Pers.) Schum. *T. neriifolia* Juss.

Acitz (Gaumer). Sp. *Campanilla, Cabalonga* (Gaumer). Planted and perhaps naturalized; probably not native.—A glabrous shrub or small tree with milky sap; leaves linear, 7–15 cm. long; flowers bright yellow, 7 cm. long; fruit 3–4 cm. broad, 2 cm. long, fleshy.—The latex is applied to decayed teeth to relieve toothache, and is reported sometimes to resolve them into fragments. It is applied also to chronic sores or ulcers. The sap is reputed poisonous, and doubtless is so. The extract of the plant has been employed locally in the treatment of malarial and other fevers, and of yellow fever. The sweet-scented flowers are very showy. The name "chohop" is reported for this species from Guatemala.

Vallesia glabra (Cav.) Link.

Reported from Mugeres Island, *Gaumer* in 1886.—A shrub or small tree, glabrous or nearly so; leaves alternate, lanceolate, fleshy;

flowers small, white, in cymes; fruit an oblong white drupe 1 cm. long.

ASCLEPIADACEAE. Milkweed Family

Asclepias curassavica L.

Chililló-xiu (Sp. and Maya), *Analkak, Chontalpa, Xpolkuchil, Cabal-kumche, Kuchilxiu, Cuchillo-xiu* (Aznar), *Sac-canzelxiu* (Cuevas). Sp. *Cancerillo, Plato y taza, Revienta muelas, Ponchixuis, Cochinita* (Camp.), *Quema-casas* (seeds; Camp.). A common weed.—*Red milkweed.* An erect perennial herb with milky sap, glabrous or nearly so; leaves opposite, oblong-lanceolate; flowers red and yellow, in umbels.—The plant is employed for treating cutaneous and venereal diseases and for fevers. The leaves are applied, either fresh or dried and pulverized, to cancers and sores, and the fresh leaves are bound upon the head as a remedy for headache. The latex is used as a hemostatic, placed in cavities in the teeth to relieve toothache, or taken as an emetic and purgative. The plant, a showy and handsome one when in flower, is one of the most frequent weeds of tropical America. The name "cantil" is reported for the plant from Guatemala.

Asclepias longicornu Benth. *A. pratensis* Millsp. FMB. 1: 38. 1895, not Benth.

Cabalkunche (Gaumer). Frequent.—A low simple erect perennial pubescent herb; leaves oblong to ovate, obtuse; flowers greenish, in lax or dense umbels.—The milky latex is placed in cavities in the teeth to relieve toothache.

Dictyanthus yucatanensis Standl. FMB. 8: 37. 1930.

Boochin, Xbockin. Endemic; type, *Gaumer 933;* Progreso, *Gaumer 1173;* Buena Vista Xbac, *Gaumer 1173;* Chichankanab, *Gaumer 1544.*—A slender vine with hirsute stems; leaves long-petiolate, ovate-cordate, acuminate, pubescent on both surfaces; corolla 22 mm. broad, broadly campanulate, finely reticulate-veined within, the lobes broadly triangular, acuminate; appendages of the corona narrowly oblong, dilated and rounded at the apex, extending well out along the corolla.—The species has been referred incorrectly to *D. ceratopetalus* Donn. Smith, a Central American *Dictyanthus.*

Funastrum elegans (Decaisne) Schlechter. *Philibertia Ervendbergii* Gray.

Izamal, *Gaumer 880.*—An herbaceous vine; leaves ovate-cordate, rounded at the apex, pubescent; flowers umbellate, greenish white, 1 cm. broad.

Funastrum Lindenianum (Decaisne) Schlechter, Repert. Sp. Nov. 13: 286. 1914. *Sarcostemma Lindenianum* Decaisne in DC. Prodr. 8: 541. 1844. *Philibertia Lindeniana* Hemsl. Biol. Centr. Amer. Bot. 2: 318. 1881.

Type reported as collected in Yucatan by Linden, the locality doubtful.—Leaves cordate, rounded at the apex, pubescent; flowers in sessile umbels.

The plant reported from Yucatan as *Philibertia odorata* Hemsl. (Millsp. & Loes. BJE. 36: Beibl. 80: 23. 1904) has not been seen by the writer, but it is probably *Funastrum elegans.*

Hoya carnosa R. Br. is reported by Gaumer as in cultivation, and called "flor de cera." This is the wax-plant, which is sometimes grown as a house plant in the United States.

Macroscepis obovata HBK. Nov. Gen. & Sp. 3: 201. *pl. 133.* 1819.

Emtzul (Gaumer). Occasional; type from Campeche.—A large, hirsute, chiefly herbaceous vine; leaves broadly obovate, 6–17 cm. long, abruptly short-acuminate, cordate at the base; flowers 2–2.5 cm. broad, in sessile or subsessile cymes.

Macroscepis rotata Decaisne in DC. Prodr. 8: 599. 1844.

Emtzul (Gaumer). Known only from the type, said to have been collected in Yucatan by Linden.—Leaves obovate, short-acuminate, cordate at the base; peduncles 2–3-flowered.

Marsdenia Coulteri Hemsl. *M. mexicana* Millsp. FMB. 1: 314. 1896, not Decaisne.

Xemtzul (Gaumer). Frequent in dry forests.—A large, pubescent, somewhat woody vine; leaves ovate-oblong to broadly ovate, obtuse or acute, rounded at the base; flowers small, whitish, in dense, nearly sessile cymes; fruit 6–13 cm. long, smooth, glabrous.

Marsdenia macrophylla (Humb. & Bonpl.) Fourn. *M. maculata* Hook.

Xemtzul. Frequent.—A large woody vine, nearly glabrous; leaves ovate to oval, 7–14 cm. long, thick, acute or obtuse, often subcordate at the base; flowers yellowish, in many-flowered short-stalked cymes.

Metastelma Schlechtendalii Decaisne. *M. parviflorum* Millsp. FMB. 1: 38. 1895, not R. Br.

Frequent.—A slender vine, chiefly herbaceous, pubescent or glabrate, often forming dense tangles over shrubs; leaves oblong-ovate to oval, 1–3 cm. long, obtuse or acute; flowers whitish, 3 mm. long, in umbel-like cymes.

Roulinia foetida (Cav.) Standl., comb. nov. *Asclepias foetida* Cav. *Rouliniella foetida* Vail.

Occasional.—A large herbaceous vine, puberulent or glabrous; leaves broadly ovate-cordate, acuminate; flowers small, white, in raceme-like cymes.

Vincetoxicum barbatum (HBK.) Standl. *Gonolobus barbatus* HBK.

Xtuchcahoy (Gaumer), *Bubsaak* (Petén). Occasional.—An herbaceous vine; leaves deltoid-cordate, acuminate, glabrous or nearly so; corolla 1 cm. long, greenish, densely yellow-hirsute within.—The plant is employed as a remedy for sores in the mouth, and for chronic ulcers.

Vincetoxicum crassifolium Standl. FMB. 8: 36. 1930.

Endemic; type from Chichankanab, *Gaumer 23704;* Kancabtsonot, *Gaumer 23884.*—A coarse vine, the stems densely pilose; leaves short-petiolate, coriaceous, ovate-oval, 4–6.5 cm. long, acutish or abruptly acute, rounded at the base and shallowly cordate, densely velvety-pilose beneath; corolla greenish, 1 cm. long and 1.5 cm. broad, puberulent outside, glabrous within.

Vincetoxicum velutinum (Schlecht.) Standl. *Gonolobus velutinus* Schlecht.

Chichankanab, *Gaumer 23704;* without locality, *Gaumer 23975.*—A large hirsute vine; leaves rounded-cordate, velvety-pubescent; corolla 3 cm. broad; fruit covered with long spinelike tubercles.

A sterile plant, perhaps a *Vincetoxicum,* from Petén is said to be called "purgación-xiu." The "purgación-xiu" listed by Cuevas (Pl. Med. 79. 1913) is perhaps of this family. It is a local remedy for gonorrhea. Gann reports that a plant of the same name is employed as a remedy for bladder and urethral affections.

CONVOLVULACEAE. Morning-glory Family

Calonyction aculeatum (L.) House. *Ipomoea Bona-nox* L.

Zutub (Gaumer; reported as "xutu"). Sp. *Nicua, Oración.* Frequent.—*Moonflower.* A large herbaceous vine, often armed with

fleshy prickles; leaves cordate, entire or lobed, glabrous; corolla white, the slender tube 8–12 cm. long; sepals with long subulate tips.

Calonyction clavatum Don.

Infrequent; Izamal, *Gaumer 23450;* Chichankanab, *Gaumer 1274.*—A large vine, the stems hirsute; leaves broadly cordate, entire or angled, glabrous; corolla purple and lilac, 15 cm. broad or smaller.

Calonyction muricatum (L.) Don. *Ipomoea Bona-nox* Millsp. FMB. 1: 384. 1898, not L.

Occasional; Izamal, *Gaumer 23808;* Nohacab, *Schott 684.*—A large vine, glabrous or nearly so, armed with short recurved fleshy prickles; leaves broadly cordate, entire; corolla purple, the tube 3–5 cm. long.

Evolvulus alsinoides L.

Xiaxiu (Millspaugh). Common.—A small slender herb, erect or decumbent, pubescent; leaves oblong to linear, acute or obtuse; flowers axillary, 5–6 mm. broad, blue or white, slender-pediceled.—The plant is said to be employed as a remedy for gonorrhea.

Evolvulus nummularius L.

Occasional.—A small slender creeping perennial; leaves oval or orbicular, short-petioled, 5–20 mm. long, rounded or retuse at the apex, pubescent or glabrate; corolla 5–8 mm. broad, white or pale blue.

Ipomoea Batatas (L.) Lam.

Iz. Sp. *Camote.* Cultivated commonly; also naturalized, but not native; original habitat unknown.—*Sweet potato.* The Motul Dictionary defines "ahzinaz" as "long red batatas." Names given to the sweet potato in the Guatemalan dialects are: "om," Pokonchí; "cajix," Ixil; "iis," Mame; "on," Jacaltec, Chuje.

Ipomoea carnea Jacq. *I. Jalapa* Millsp. FMB. 1: 39. 1895, not Pursh.

Chocobcat (Gaumer). Frequent.—A large woody vine; leaves rounded-cordate, densely pubescent beneath; flowers 8 cm. long, red-purple or pink, in stalked, few- or many-flowered cymes; sepals rounded at the apex.—In Mexico this species is known only from the Yucatan region.

Ipomoea cathartica Poir. *Pharbitis cathartica* Choisy.

Collected on Cozumel Island and in Petén.—An herbaceous vine, pubescent or glabrate; leaves cordate, acuminate, entire or 3-lobed; corolla red-purple, 5–7 cm. long.

Ipomoea cissoides (Lam.) Griseb.

Kixolok (Gaumer). Frequent.—A hirsute herbaceous vine; leaves digitately 5-foliolate, the leaflets petiolulate, elliptic, dentate, 2–5 cm. long, acute or acuminate; corolla white, 2–3 cm. long.

Ipomoea dasysperma Jacq.

Frequent.—A slender herbaceous glabrous vine; leaves pinnately divided into narrow entire segments; corolla pink, 3.5–4 cm. long; sepals rounded at the apex.

Ipomoea Meyeri (Spreng.) Don.

Tsusuc, Xhail. Frequent.—A small herbaceous vine, glabrous or pilose; leaves deeply cordate, cuspidate-acuminate, entire or angled; corolla blue or purple, 2.5–3 cm. long; sepals green, linear, hirsute; flowers in dense, usually many-flowered cymes.—Some of the Yucatan specimens have been determined as *I. iostemma* House.

Ipomoea Morelii Duchass. & Walp. *"Convolvulus Grayi* Rose" ex Millsp. FMB. 1: 314. 1896.

Yaaxkal (Gaumer). Without locality, *Millspaugh 147, 137b;* Buena Vista Xbac, *Gaumer 1101.*—A glabrous herbaceous vine; leaves broadly ovate, deeply cordate at the base, acute or acuminate, entire or nearly so; flower clusters long-stalked, the pedicels elongate; sepals glabrous, about 1 cm. long, rounded at the apex; corolla probably purple, about 6 cm. long.

Ipomoea Nil (L.) Roth. *I. hederacea* Millsp. FMB. 1: 384, in part, 1898, not Jacq.

Common.—A slender herbaceous pilose vine; leaves deeply cordate, usually 3-lobed; flowers blue, pink, or purple, 3–4 cm. long, in long-stalked few-flowered cymes; sepals hirsute, with long linear green tips.

Ipomoea Pes-caprae (L.) Roth. *I. biloba* Forsk.

Common on seashores.—*Goatfoot morning-glory.* A large glabrous succulent prostrate herb; leaves thick and fleshy, rounded, often notched at the apex; flowers purple, 4–5 cm. long.—This is one of the characteristic strand plants of tropical America. Gaumer states that the stems are sometimes 18 m. long.

Ipomoea sagittata Lam.

Chichankanab, *Gaumer 1271, 23694.*—A slender glabrous vine; leaves narrowly sagittate, the basal lobes long, often linear; flowers purple-pink, 6.5 cm. long; sepals unequal, rounded at the apex.

Ipomoea Seleri Millsp. BJE. 36: Beibl. 80: 23. 1905.

Tuuxicin (Gaumer); reported erroneously as "chai." Common in thickets; endemic; type from Ticul, *Seler 3862*.—An herbaceous vine, glabrous or nearly so; leaves long-petioled, broadly cordate, acuminate, entire; flowers about 8 cm. long, purple, in few-flowered pedunculate umbel-like cymes; calyx covered with long fleshy spinelike tubercles.

Ipomoea tiliacea (Willd.) Choisy. *I. fastigiata* Sweet.

Hebil (Gaumer). Common.—A large herbaceous vine, glabrous or nearly so; leaves deeply cordate, acuminate, entire; corolla purple or pink, 5–6 cm. long; sepals acuminate; flowers in dense long-stalked cymes.

Ipomoea triloba L. *Quamoclit coccinea* Millsp. FMB. 2: 84, in part. 1900, not Moench.

Frequent.—An herbaceous vine, glabrous or pubescent; leaves usually 3–5-lobed; flowers red-purple.

Ipomoea tuxtlensis House. *I. hederacea* Millsp. FMB. 1: 384, in part. 1898, not Jacq.

Frequent.—A densely pubescent vine; leaves cordate, entire or deeply 3-lobed, sericeous beneath; flowers in dense peduncled cymes; corolla dark purplish red, 3.5–5 cm. long.

Ipomoea violacea L. *I. puncticulata* Benth. *I. jamaicensis* Millsp. FMB. 1: 39. 1895, 1: 314. 1896, not Don.

Common.—A stout glabrous herbaceous vine; leaves broadly cordate, cuspidate-acuminate; flowers blue or purple, 5–6 cm. long, in few-flowered cymes; sepals narrow, pale-margined.

Gann reports that a decoction of *Ipomoea* leaves, with those of other plants, is administered as a remedy for asthma and bronchitis. *Ipomoea purga* Hayne is called "nakta" in Kekchí.

Jacquemontia azurea (Desr.) Choisy.

Occasional.—A small herbaceous vine, glandular-pilose; leaves ovate, long-acuminate, slender-petiolate; flowers in mostly 3-flowered cymes; corolla blue, 1 cm. long; sepals acuminate.

Jacquemontia havanensis (Jacq.) Urban. *Convolvulus jamaicensis* Millsp. FMB. 1: 40. 1895, 2: 88. 1900, not Jacq.

Progreso, *Millspaugh 208, 1726, Schott 722*.—A slender herbaceous vine, puberulent or glabrate; leaves short-petiolate, oblong or elliptic,

rounded or emarginate at the apex; flowers mostly solitary; corolla 1 cm. long, white; sepals rounded at the apex, unequal.—The species is known only from Cuba and Yucatan.

Jacquemontia obcordata (Millsp.) House, N. Y. State Mus. Bull. 233–234: 63. 1921. *Convolvulus obcordatus* Millsp. FMB. 2: 88. 1900.

Type from Progreso, *Millspaugh 1707*.—A fleshy, nearly glabrous, prostrate herb; leaves slender-petiolate, obcordate or obovate, small, 1–2 cm. long, acute at the base; flowers solitary, slender-pediceled, the corolla about 8 mm. long.

Jacquemontia pentantha (Jacq.) Don.

Akilziu (Gaumer; listed as "akixiu"), *Sacmix* (Valdez), *Yaxha* (Schott); reported also as "yaax-hebil" and "yaxhal." Sp. *Sombrerito azul.* Common.—A small herbaceous vine, glabrate; leaves ovate or cordate, acute or acuminate; flowers in dense axillary stalked cymes; corolla blue, 12–20 mm. long; sepals acute or acuminate.—The plant is reputed to have refrigerant properties.

Jacquemontia simulata House, Bull. Torrey Club 33: 314. 1906. *J. abutiloides* Millsp. FMB. 1: 314. 1896, 1: 385. 1898, not Benth.

Frequent; endemic; type from Izamal, *Gaumer 574*.—A slender vine, somewhat woody, tomentose or glabrate; leaves broadly ovate-cordate, obtuse, mucronate; cymes dense, many-flowered; corolla white, 12 mm. long; sepals rounded at the apex.

Jacquemontia tamnifolia (L.) Griseb.

Yaazebil (Gaumer). Occasional.—A small hairy vine; leaves ovate or cordate, acuminate; flowers in dense hairy heads, subtended by leaflike bracts; corolla blue, 12 mm. long.

Operculina aegyptia (L.) House. *Ipomoea pentaphylla* Jacq.

Tzootzak (Gaumer), *Soosac* (Schott). Sp. *Enredadera peluda.* Frequent.—A large herbaceous vine, copiously long-hirsute; leaves digitately 5-foliolate, the leaflets elliptic or obovate, acuminate, entire; corolla white, 2.5 cm. long; peduncles equaling the leaves, few-flowered.

Operculina ampliata (Choisy) House, Bull. Torrey Club 33: 503. 1906. *Ipomoea ampliata* Choisy in DC. Prodr. 9: 361. 1845.

Described from Campeche; unknown to the present writer.—Stem glabrous; leaves cordate, 3-lobate, glabrous; corolla yellow.

Operculina dissecta (Jacq.) House. *Ipomoea sinuata* Ortega.

Izamal, *Gaumer 1093; Gaumer* in 1888.—A large herbaceous vine; leaves 5-lobed, the lobes deeply lobate; corolla 3.5–4 cm. long, white.

Operculina ornithopoda (Robinson) House. *Ipomoea ornithopoda* Robinson.

Common in brushlands.—A slender herbaceous glabrous vine; leaves deeply 5-lobed, the lobes entire or lobate, linear or broader; corolla white, 4–5 cm. long; sepals large, rounded at the apex.

Operculina tuberosa (L.) Meisn.

Occasional.—A large glabrous vine; leaves mostly 7-lobed nearly to the base, the lobes acuminate, entire; corolla yellow, 4–5.5 cm. long; sepals large, obtuse, enlarged in fruit.

Porana paniculata Roxb.

Cultivated for ornament; native of the East Indies.—*Christmas-vine.* A large woody vine, whitish-pubescent; leaves broadly ovate-cordate, acuminate; flowers 4 mm. long, white, in large panicles.

Quamoclit coccinea (L.) Moench. *Ipomoea coccinea* L.

Sp. *Hiedra colorada.* Common.—A glabrous annual vine; leaves entire or lobed, cordate at the base; flowers scarlet, the slender corolla tube 2–4 cm. long, abruptly expanded into a broad limb.

Quamoclit pennata (Desr.) Bojer. *Ipomoea Quamoclit* L.

Sp. *Cambustera.* Cultivated for ornament; native of the Old World.—*Cypress-vine.* A glabrous annual vine; leaves pinnately parted into linear segments; corolla scarlet, 2.5–4 cm. long.

Turbina corymbosa (L.) Raf. *Ipomoea sidaefolia* Choisy.

Xtabentun (Schott). Frequent in thickets.—A woody vine; leaves ovate-cordate, abruptly acuminate, entire, glabrous or pubescent; flowers in dense cymes; corolla white, 2–3 cm. long.—Called "Pascua" and "flor de Pascua" in Tabasco.

CUSCUTACEAE. Dodder Family

Cuscuta americana L. *C. americana* var. *spectabilis* Prog.; *C. corymbosa* Millsp. & Loes. BJE. 36: Beibl. 80: 24. 1905, not Ruiz & Pav.

Kanlecay (Gaumer). Frequent.—*Dodder.* A small parasitic twining glabrous yellow herb, the leaves reduced to minute scales; flowers 3–4 mm. long, white, in small lax cymes.—Cuevas (Pl.

Med. 110. 1913) states that the infusion of the plant is a remedy for dyspepsia and biliousness.

Cuscuta ceratophora Yuncker.

Hacienda San Antonio, *Schott 902.*—A slender glabrous yellow parasite; flowers 3 mm. long, in very dense, compact clusters.

POLEMONIACEAE. Polemonium Family

Phlox Drummondii Hook.

Sp. *Flox.* Listed by Gaumer as in cultivation; native of Texas.—*Phlox.* The plant is often planted for ornament in tropical America.

HYDROPHYLLACEAE. Waterleaf Family

Hydrolea spinosa L. *H. glabra* Choisy; *H. spinosa* var. *glabra* Loes.

Uxmal, *Seler 3885.*—A viscid-pubescent herb of wet soil, armed with long slender spines; leaves alternate, elliptic or oblong, 3–10 cm. long, entire; flowers blue, 1 cm. broad.—Called "abrojo" in Tabasco.

Nama jamaicense L. *N. jamaicense* var. *gracile* Brand in Engl. Pflanzenreich IV. 251: 156. 1913.

Xpacumpac (Gaumer). Common.—A prostrate or procumbent, pubescent annual; leaves alternate, spatulate or obovate, 1–5 cm. long, rounded at the apex, entire; flowers solitary in the leaf axils, white or purplish, 6–8 mm. long, slender-pedicellate.—According to Valdez, the plant is employed as a remedy for inflammation and blood vomit.

N. jamaicense var. *gracile* is a form with long-petiolate, scarcely decurrent leaves and long pedicels. The type was collected on Cozumel Island by Gaumer.

Pérez lists "xpakunpak," which he describes as "the creeping plant called 'yerba de la golondrina.' " This is probably a *Euphorbia* of the subgenus *Chamaesyce.*

BORAGINACEAE. Borage Family

Bourreria pulchra Millsp.; Greenm. FMB. 2: 338. 1912. *Cordia pulchra* Millsp. BJE. 36: Beibl. 80: 24. 1905.

Bacalche (Gaumer), *Kakalche* (Gaumer). Common; endemic; type from Itzimná, *Seler 3946.*—A shrub or tree, sometimes 9 m.

high; leaves alternate, oblong to oval, obtuse, tomentulose beneath, entire; flowers white, 18 mm. long, in terminal cymes; fruit a drupe.—The flowers have a heavy and unpleasant odor.

This is probably the "bacalche" described by Cuevas (Pl. Med. 15, Ilustr. *pl. 19, f. 3.* 1913), although the illustration is rather deceptive. He states that the plant is employed as a remedy for cutaneous diseases. Here may belong, also, the "kakalche" listed by Pérez, "a plant whose wood resembles ebony."

Cordia alliodora (Ruiz & Pav.) Cham. *C. gerascanthoides* Millsp. FMB. 1: 40. 1895, not HBK.

Bohun (B. H.). Sp. *Laurel blanco* (B. H.). *Salmwood* (B. H.). Mugeres Island; common in the southern part of the Peninsula.—A large tree; leaves elliptic-oblong, 10–20 cm. long, entire, finely stellate-pubescent; flowers white, fragrant, 1 cm. long, in large panicles.—The close-grained and light or dark brown wood is employed for construction purposes and cabinet work. The nodes of the branchlets are nearly always swollen and inhabited by small ants which bite severely. In Tabasco this species is called "bojón," "bojón blanco," "bojón prieto," and "barí." The Kekchí name is "suchah." The Maya name has been reported from Yucatan incorrectly as "habeem."

Cordia cylindrostachya (Ruiz & Pav.) R. & S.

Kopche (Gaumer); *Koxolxek* (Becquaert). Frequent.—A shrub 1–3 m. high; leaves mostly lanceolate or oblong, serrate, scabrous above, pubescent beneath; flowers small, greenish white, in dense spikes; fruit a small red drupe.—Called "azota-caballo" in Tabasco.

Cordia dodecandra DC. *C. heccaidecandra* Loes. BJE. 36: Beibl. 20: 25. 1905.

Chackopte (Gaumer), *Kopte* (listed also as "copte," and by the Motul Dictionary as "koopte"). Sp. *Siricote* (Yuc., B. H.). Common in the forests; sometimes planted as a shade and fruit tree.—A large tree, sometimes 30 m. high; leaves oblong to rounded, entire or nearly so, scabrous; flowers orange-red, 5 cm. long, in small cymes; fruit ovoid, 5 cm. long, yellowish, slightly acid.—The tree flowers in April and May, the fruit ripening in July and August. The hard heavy handsome dark wood, which takes a fine polish, is used for general construction and cabinetwork. The rough leaves are utilized for cleaning kitchen pots, and by carpenters as a substitute for sandpaper. The mucilaginous fruit is eaten raw, and made into dulces.

A sirup made from the wood and bark is a popular remedy for coughs. The type of *C. heccaidecandra* was collected at Chichén Itzá, *Seler 3991*.

Cordia Gerascanthus L. *C. gerascanthoides* HBK.

Bohom (Gaumer; sometimes written "bojón"), *Bohonche* (B. H.). Sp. *Baría, Barillo, Varillo.* Common.—A large tree 15–25 m. high; leaves lanceolate to oblong, 5–12 cm. long, acute, entire, glabrous or nearly so; flowers pure white, fragrant, 1.5–2 cm. long, in dense cymes.—The flowers open in March, covering the trees so densely that their crowns look like mounds of snow. As they fade, the flowers turn reddish brown. They are much visited by hummingbirds, and by many insects, especially bees, which obtain from them a good quality of honey. The hard and elastic wood is valued for the construction of carts and carriages and many other articles. The Maya name has been reported erroneously as "habeem."

Cordia globosa (Jacq.) HBK.

Hauche (Gaumer). Occasional in dry thickets.—A shrub 3.5 m. high or less; leaves lanceolate to ovate, coarsely serrate; flowers white, in dense stalked globose heads; fruit red.

Cordia Sebestena L.

Zackopte (Gaumer); reported also as "kopte" and "coopte," but perhaps incorrectly. Sp. *Anachuite, Anacuite, Anacahuita* (of Nahuatl derivation), *Siricote* (Camp.), *Siricote blanco* (Schott).—Common. A shrub or small tree; leaves ovate to rounded, entire or dentate, scabrous; flowers large, orange-red, in dense cymes; fruit ovoid, white, 2.5–4 cm. long.—The tree is reported to flower through most of the year. Its fruit is sweet and edible. The hard, close-grained, dark-brown, and heavy wood is used for cabinetwork and construction. A sirup prepared from the bark, flowers, and fruit is a local remedy for affections of the chest.

Cordia serratifolia HBK. Nov. Gen. & Sp. 3: 76. 1819.

Type from Campeche, the species otherwise unknown.—Leaves oblong, acuminate, serrate, scabrous above, pubescent beneath; flowers in small globose heads.

Ehretia tinifolia L.

Bec (Gaumer; written also as "beec"). Sp. *Roble;* reported as "sauco." Common.—A tree 18–25 m. high, glabrous or nearly so; leaves oblong to ovate, rounded to acutish at the apex, entire; flow-

ers white, 4 mm. long, in panicles; fruit a red drupe 6 mm. long.—The leaves are used in baths for crippled persons in the hope of bettering their condition. The flowers somewhat suggest those of *Sambucus*, and are employed locally in the same manner. A decoction of the leaves is given to stop the vomit of blood.

Heliotropium angiospermum Murr. *H. parviflorum* L.; *Heliophytum parviflorum* DC.

Nemaax (Gaumer; "monkey-tail"), *Cotsnemax* (Cuevas). Sp. *Rabo de mico*. A common weed.—An erect pubescent herb 1 m. high or less; leaves lanceolate to ovate, obtuse or acute; flowers white, in long recurved spikes.—The plant is much used in domestic medicine, tonic and stimulant properties being ascribed to it. It is given as a remedy for dysentery, nosebleed, and diseased gums, and is applied to sores and swellings.

Seler 3853 is a curious abnormal form of this species, in which the flowers are replaced by foliaceous bracts.

Heliotropium curassavicum L.

Common on the shores of lagoons and lakes.—A procumbent, pale green, very fleshy, glabrous herb; leaves linear or nearly so, obtuse; flowers small, white, in one-sided spikes.

Heliotropium fruticosum L. *H. inundatum* Millsp. FMB. 1. 41. 1895, 1: 386. 1898, not Sw. *H. campechianum* HBK. Nov. Gen. & Sp. 3: 86. 1818.

Nemaax (Gaumer). Common.—Plants erect, usually 60 cm. high or less, herbaceous or usually woody, gray-strigose; leaves linear to oblong-lanceolate; flowers small, white, in one-sided spikes.—The type of *H. campechianum* is from Campeche.

Heliotropium indicum L.

Nemaax (Gaumer). Sp. *Alacrancillo*. A common weed.—A coarse erect hirsute herb; leaves ovate or oval, obtuse, repand or crenate; flowers small, blue, in recurved spikes.—The name "ohesimah" is reported from Guatemala for this species.

Heliotropium phyllostachyum Torr.

Occasional.—A small strigose herb; leaves oblong or lanceolate, obtuse or acute; flowers white, in the axils of leaflike bracts.

Myosotis scorpioides L.

Sp. *No-me-olvides*. Reported by Gaumer as in cultivation; native of Europe.—*Forget-me-not*. A low herb with small blue flowers.

Tournefortia gnaphalodes (L.) R. Br.

Sicimay (Gaumer). Common on seashores.—A shrub 1 m. high or less, densely silvery-sericeous; leaves linear or linear-spatulate, obtuse or rounded at the apex; flowers small, white, in short one-sided spikes; fruit ovoid, black, 5 mm. long.—In Mexico the species is known only from this region.

Tournefortia umbellata HBK. Nov. Gen. & Sp. 3: 79. *pl. 202.* 1819. *Heliotropium inundatum* Millsp. FMB. 1: 315. 1896, not Sw.

Common; endemic; type from Campeche.—A woody vine, nearly glabrous; leaves lanceolate to ovate-oblong, acuminate; flowers small, whitish, in long clustered one-sided spikes; fruit a small drupe.

Tournefortia volubilis L.

Xulkin (Gaumer), *Chacnichmax* (Gaumer). Common in thickets.—A woody vine; leaves lanceolate or oblong-ovate, 4–10 cm. long, acuminate, usually densely grayish-sericeous, at least beneath, rarely glabrate; flowers small, whitish, in slender panicled spikes; fruit a small white drupe.

VERBENACEAE. Verbena Family

Avicennia nitida Jacq. *A. officinalis* Millsp. FMB. 1: 42. 1895, 1: 316. 1896, 1: 386. 1898, not L.

Sp. *Mangle blanco, Mangle prieto, Mangle negro. Black mangrove* (B. H.). Abundant in mangrove swamps.—A shrub or tree, usually less than 20 m. high; leaves opposite, petioled, oblong, obtuse, entire, thick, whitish and puberulent beneath; flowers white, in small head-like cymes.—The wood is hard, close-grained, and dark brown. The flowers are much visited by bees. A decoction of the bark is employed both externally and internally for hemorrhoids, sores, and diarrhea.

Bouchea prismatica (L.) Kuntze. *Valerianoides jamaicense* Millsp. FMB. 1: 392. 1898, not Vahl.

Occasional.—An erect annual, simple or branched, finely pubescent; leaves opposite, slender-petioled, ovate, obtuse or acute, serrate; flowers small, purplish, in long slender spikes.

Callicarpa acuminata HBK.

Zacpukim (Gaumer); *Pukin* (Becquaert). Common in thickets.—A stout shrub; leaves short-petiolate, ovate to oblong-lanceolate, acuminate, entire or serrate, densely stellate-tomentose beneath;

flowers white, 3 mm. long, in dense axillary cymes; fruit a small black drupe 5 mm. long.—Some of the Yucatan specimens have been determined wrongly as *C. Pringlei* Briq.

Citharexylum Schottii Greenm. FMB. 2: 190. 1907. *C. quadrangulare* Millsp. FMB. 1: 386. 1898, not Jacq.

Tatakche (Gaumer), *Iximche* (Gaumer). Sp. *Palo de violín.* Frequent; endemic; type from Mérida, *Schott 575.*—A small glabrous tree; leaves slender-petioled, lanceolate, acuminate, entire; flowers small, in long slender racemes; fruit a drupe 5–7 mm. long.

The "ixtatakche" listed by Pérez is probably a different plant. It is described as a "yerba," and is said to be applied to old sores to heal them.

Citharexylum trinerve Blake, Proc. Biol. Soc. Washington 34: 45. 1921.

Type from Xnocac, *Gaumer 23502;* without locality, *Gaumer 23503, 24096, 24388, 24431;* also in Salvador and Costa Rica.—A small tree, nearly glabrous; leaves petioled, broadly elliptic or obovate, obtuse or rounded at the apex, entire, 3-nerved; racemes short and few-flowered.

Clerodendron fallax Lindl. *C. Colebrookianum* Millsp. FMB. 1: 386. 1898, not Walp.

Planted for ornament; native of the East Indies.—A large herb or small shrub; leaves large, long-petioled, cordate-ovate, pilose; flowers scarlet, in large terminal panicles.

Clerodendron fragrans Vent. var. **pleniflora** Schauer.

Sp. *Jazmín de Italia.* Planted for ornament; native of southeastern Asia.—A coarse herb, simple or sparsely branched; leaves large, rounded-ovate, sinuate-dentate; flowers white, double, in small dense terminal cymes.—A common ornamental plant of tropical America, often escaping and establishing itself.

Clerodendron ligustrinum (Jacq.) R. Br. *C. aculeatum* Millsp. FMB. 1: 316. 1896, 1: 386. 1898, not Schlecht.

Itzimte (Gaumer). Frequent in thickets.—A shrub 1.5–3 m. high; petiole bases persistent, spinose; leaves ovate to elliptic-oblong, acute, entire, 4–10 cm. long; flowers white, in small axillary cymes; fruit a drupe 1 cm. in diameter.—Called "muste" in Tabasco.

Cornutia pyramidata L.

Latche (Petén). Collected only at Izamal and in Petén.—A large shrub or small tree with 4-angled branches; leaves broadly ovate,

9–30 cm. long, acuminate, densely pubescent; flowers small, violet, in large terminal panicles; fruit a small drupe.

Duranta repens L. *D. Plumieri* Jacq.

*Kanppococh*e (Gaumer; "yellow hat tree"), *Hombococh*e (Schott). Common in dry thickets; sometimes planted for ornament.—A slender shrub with recurved or pendent branches; leaves opposite or verticillate, ovate or obovate, 2–5 cm. long, obtuse, entire or serrate, glabrous or pubescent; flowers small, lilac or white, in long racemes; fruit a globose yellow drupe 7–11 mm. long.—The Maya name has been reported incorrectly as "xcambococh*e*." The fruits are eaten by birds.

Lantana Camara L. *L. horrida* HBK.; *L. involucrata* Millsp. FMB. 1: 316. 1896, not L. *L. aculeata* Millsp. FMB. 2: 90. 1900, in part, perhaps not L.

Petekin (Gaumer), *Ikilhaxiu* (Gaumer). Sp. *Palabra de caballero, Corona de sol, Alfombrillo hediondo.* Common.—*Lantana.* A pubescent shrub, usually armed with short stout recurved prickles; leaves petioled, ovate, acute or obtuse, crenate, scabrous; flowers in dense stalked heads, yellow or orange, changing to red or purple; fruit a small black drupe.—The plant is a somewhat variable one, some of whose forms are grown for ornament in temperate regions. The juicy fruit is edible, but not very agreeable. The plant is aromatic and is reputed to have stimulant and tonic properties, and is employed for treating intestinal and throat affections. The names "xoltexnuc," "xohexnuc," and "orégano silvestre," reported for the species from Yucatan, are said to be erronous.

Lantana canescens HBK. *Lippia geminata* Millsp. FMB. 1: 317. 1896, 2: 91. 1900, not HBK.

Common.—A slender unarmed shrub; leaves lanceolate to broadly ovate, acute, crenate or nearly entire, rough-pubescent; flowers white, in stalked, globose or oblong heads.—The plant contains an aromatic oil which is reported to have medicinal properties.

Lantana involucrata L. *L. odorata* L.

Zicilhaxiu (Gaumer). Common.—A dense shrub 1–3 m. high; leaves ovate to oblong, obtuse or rounded at the apex, crenate, puberulent or tomentose beneath; flowers lilac or white, in stalked headlike spikes; fruit blue, 3–4 mm. long.

Lippia dulcis Trevir.

Xtuhuexiu (Gaumer). Sp. *Orozuz, Orozuz del país.* Common.—A small perennial herb, strong-scented; leaves petioled, rhombic-ovate, crenate, acute or obtuse, strigose; flowers small, whitish, in long-stalked short-cylindric heads.—When chewed, the plant has the flavor of licorice. Its decoction is employed as a remedy for coughs, catarrh, bronchitis, and asthma.

Lippia graveolens HBK. Nov. Gen. & Sp. 2: 266. 1817. *L. Berlandieri* Millsp. FMB. 1: 316. 1896, not Schauer. *L. geminata* Millsp. FMB. 2: 91. 1900; Millsp. & Loes. BJE. 36: Beibl. 80: 25. 1905, not HBK.

Xakilche (Gaumer). Sp. *Orégano, Té del país.* Frequent; type from Campeche.—A small aromatic shrub; leaves oblong or ovate-oblong, obtuse or acute, crenate, puberulent and glandular; flower spikes small, 4–6 at each node, the bracts 4-ranked.—The names "tabay" and "tarbay" have been reported for this species, but their application is doubtful. The plant is used in domestic medicine as a stimulant, tonic, and expectorant, especially in the treatment of cholera morbus, fevers, bronchitis, and catarrh. It is employed also for flavoring food.

Lippia nodiflora (L.) Michx.

Common along seacoasts and about lakes.—A creeping perennial herb, minutely pubescent; leaves spatulate or narrowly oblanceolate, obtuse, serrate; flowers white or purplish, in long-stalked axillary cylindric heads.

Lippia reptans HBK. *L. nodiflora* Millsp. FMB. 1: 317. 1896, not Michx.

Chichankanab, *Gaumer 23670.*—Similar to *L. nodiflora;* leaves rhombic-ovate, obtuse, decurrent at the base, coarsely serrate, prominently veined, strigose; flowers white, in oblong long-stalked spikes.

Lippia stoechadifolia (L.) HBK.

Cabalyaxnic (Valdez). Sp. *Té de Yucatán, Té del país, Té cimarrón* (Petén). Frequent.—Plants somewhat woody, ascending or nearly erect, strigose; leaves linear-oblong, serrate; flower heads oblong, long-stalked.—Although the name "cabalyaxnic" is reported for this plant by Valdez, it is applied more commonly, apparently, to *Ruellia tuberosa.*

Lippia umbellata Cav. *?L. yucatana* Loes. Repert. Sp. Nov. 9: 364. 1911. *L. albicaulis* Greenm. FMB. 2: 340. 1912.

Xoltenuuc (Gaumer). Sp. *Salvia poblana.* Occasional.—A shrub 1.5–3 m. high with whitish branches; leaves ovate or oval-ovate, 6–20 cm. long, acute or obtuse, crenate, pubescent; flowers small, yellowish white, in long-stalked bracted heads.—I have not seen the type of *L. yucatana,* collected at Chichen Itzá by Seler (*No. 4918*), and it may be referable rather to *L. myriocephala* Schlecht. & Cham. The type of *L. albicaulis* was collected at Izamal, *Gaumer 971.*

The identity of the plant collected by Johnson and listed as *Lippia origanoides* HBK. (Millsp. FMB. 1: 42. 1895) is doubtful.

Petrea arborea HBK. *P. volubilis* Millsp. FMB. 1: 42. 1895; Millsp. & Loes. BJE. 36: Beibl. 80: 26. 1905, not L.

Yochopptzimin (Gaumer), *Opptzimin* (Seler). Sp. *Bejuco de caballo.* Frequent in dry thickets.—*Purple-wreath.* A large woody vine; leaves short-petioled, oblong or obovate, obtuse or acute, entire, stiff, scaberulous; flowers in long pendent racemes; calyx lobes blue, 2 cm. long, long-persistent.—The vine is a strikingly beautiful one when in flower.

Priva lappulacea (L.) Pers. *P. echinata* Juss.

Tzayentzay (Gaumer), *Zayuntzay* (Cuevas), *Tsayuntsay* (Schott). A common weed.—A low pubescent annual; leaves ovate, acute, serrate; flowers small, blue, in slender racemes; fruit of 2 prickly nutlets.—The calyces are covered with small hooked hairs by which they adhere to clothing. The name "xpakunpak" has been reported for this plant, but perhaps incorrectly. Cuevas states that a decoction of the leaves is a remedy for leucorrhea.

Stachytarpheta angustifolia (Mill.) Vahl. *Valerianoides jamaicense* Millsp. FMB. 1: 317. 1896, in part, not Kuntze.

Yaxcaba, *Gaumer 744;* Chichankanab, *Gaumer 1477, 2269;* Tekax, *Gaumer 1226.*—A stout, erect, simple or branched herb; leaves linear, serrate, glabrate; spikes elongate, thick.—The plant grows also in Cuba.

Stachytarpheta cayennensis (L. Rich.) Vahl.

Sp. *San Diego* (Petén), *Verbena* (Petén). Petén, and perhaps elsewhere.—Plants herbaceous or shrubby, 1 m. high or less; leaves ovate or elliptic, obtuse, serrate, pubescent or glabrate; flowers small, blue, in very slender spikes.

Stachytarpheta jamaicensis (L.) Vahl. *Valerianoides jamaicense* Medic.; *S. cayennensis* Millsp. & Loes. BJE. 36: Beibl. 80: 25.

1905, not Vahl. *Verbena officinalis* Cuevas, Pl. Med. 104, Ilustr. *pl. 13, f. 2.* 1913, not L.

Ibinxiu (Gaumer), *Talche* (Schott). Sp. *Verbena.* A common weed.—A stout erect herb, glabrous or nearly so; leaves petioled, oblong to broadly ovate, obtuse or acute, serrate, glabrate; flowers blue, in stout spikes.—The juice of the leaves is placed in the ears to relieve earache. The plant is reputed to have tonic, emetic, expectorant, and sudorific properties, and has been utilized locally in treating malaria, yellow fever, amenorrhea, syphilis, and gonorrhea. A tincture of the plant in rum is employed as a lotion to relieve nervous pains. The Kekchí name of this species is "mes."

Stachytarpheta mutabilis (Jacq.) Vahl. *Valerianoides mutabile* Kuntze.

Occasional.—A stout erect herb, copiously pubescent; leaves ovate, rounded to acuminate at the apex; flowers purple, in long slender spikes.

Tamonea curassavica (L.) Pers. *T. scabra* Schlecht. & Cham.; *Ghinia curassavica* Millsp.

Chanxnuk (Becquaert). Occasional.—A stiff erect herb, 60 cm. high or less, nearly glabrous; leaves petioled, ovate, 1–4 cm. long, obtuse or acute, serrate; flowers small, in long racemes; fruit dry, nutlike, with 4 stout spines at the apex.

One or more exotic species of *Verbena,* called "verbena" and "alfombrillo," are grown for ornament.

Vitex Gaumeri Greenm. FMB. 2: 260. 1907. *V. pyramidata* Millsp. FMB. 1: 317. 1896, not Robinson.

Yaxnic (*Gaumer;* Yuc., B. H.; "blue flower"). Frequent in dry forests; type from Izamal, *Gaumer 607.*—A tree 15 m. high or less; leaves pedately 5–7-foliolate, the leaflets stalked, ovate to oblong, 5–11 cm. long, acute or obtuse, entire, pale-tomentulose beneath; flowers small, purple, panicled; fruit fleshy, 1.5 cm. in diameter.—The tough wood is used for the construction of carts, boats, and agricultural implements.

LABIATAE. Mint Family

Hyptis capitata Jacq.

Reported from Yucatan, and probably occurring in the southern part of the Peninsula.—A coarse herb, sparsely pubescent; leaves

ovate or elliptic, serrate; flowers white, in dense globose axillary heads.

Hyptis pectinata (L.) Poit. *Mesosphaerum pectinatum* Kuntze.

Xoltexnuc. Common.—A tall puberulent herb; leaves ovate, long-petioled, obtuse or acute, serrate; flowers small, whitish, in small dense headlike cymes, these arranged in long panicled spikes.

This is perhaps the "xoltexnuc" described by Cuevas (Pl. Med. 113, Ilustr. *pl. 15, f. 3.* 1913). He states that the decoction is used in fomentations for rheumatic and other pains.

Hyptis suaveolens (L.) Poit.

Xoltexnuuc (Gaumer). Sp. *Confitura.* Common.—A coarse pilose herb; leaves ovate, acute or obtuse, serrate, long-petioled; flowers bluish, in axillary clusters or in terminal leafy panicles.

Leonotis nepetaefolia (L.) R. Br.

Occasional in Campeche and Yucatan; native of the Old World. —A coarse tall annual, soft-pubescent; leaves ovate, long-petioled, obtuse, crenate; flowers 2–2.5 cm. long, scarlet or orange-yellow, in dense globose axillary clusters; calyx lobes with stiff sharp spinose tips.

Leonurus sibiricus L. *L. glaucescens* Millsp. FMB. 1: 387. 1898, not Bunge.

An infrequent weed; native of the Old World.—A coarse herb with 4-sided stems, puberulent or glabrate; leaves 3-parted, the lobes incised; flowers purple, 1 cm. long, in dense axillary clusters, the corolla densely pilose.

Mentha citrata Ehrh. *Ocimum Selloi* Millsp. FMB. 1: 318. 1896, not Benth. *Cedronella mexicana* Millsp. FMB. 1: 387. 1898, not Benth.

Xakilxiu (Gaumer). Sp. *Yerbabuena, Toronjil.* Sometimes planted; native of Europe.—A highly aromatic herb with ovate, obtuse or acute, serrate, glabrate leaves.—In Central America the plant is rarely seen in flower. An infusion of the leaves is employed in Yucatan to expel intestinal parasites, and for pains in the stomach.

Micromeria Brownei (Sw.) Benth. *Clinopodium Brownei* Kuntze; *Satureia Brownei* Briq.

Sp. *Poleo.* Frequent.—A slender, prostrate or creeping herb, glabrous or nearly so, strong-scented; leaves long-petiolate, rounded-

ovate, obtuse, remotely crenate; flowers small, axillary, the calyx tubular.—The plant is employed as a remedy for stomach affections.

Ocimum Basilicum L.

Sp. *Albahaca.* Cultivated and perhaps escaped.—*Basil.* An erect aromatic herb, sparsely pubescent; leaves ovate to oblong, slender-petiolate, dentate or entire; flowers small, white, nearly sessile, in axillary clusters.—The plant is employed as a sudorific in treating fevers.

Ocimum micranthum Willd. *O. campechianum* Mill. Gard. Dict. ed. 8. *Ocimum* No. 5. 1768. *Teucrium inflatum* Millsp. FMB. 1: 43. 1895, not Sw. *O. canum* Millsp. FMB. 1: 318. 1896, not Sims.

Cacaltun (Gaumer). Sp. *Albahaca, Albahaca de clavo, Albahaca del monte, Albahaca silvestre.* A common weed.—An annual branched pubescent herb 50 cm. high or less, aromatic; leaves ovate, acute, serrate; flowers small, whitish, pedicellate, in axillary clusters; calyces reflexed in fruit.—The plant is a local remedy for stomach affections. A tincture of the leaves in rum is employed as a lotion to relieve rheumatism. The vernacular name "apazote" has been reported incorrectly for the plant.

Rosmarinus officinalis L.

Sp. *Romero.* Planted occasionally; native of Europe.—*Rosemary.* An aromatic shrub; leaves linear, entire, white-tomentose beneath; flowers blue or white, in axillary racemes.

Salvia coccinea Juss. *S. coccinea* var. *pseudococcinea* Gray.

Chactzitz (Gaumer); reported as "tsabtsits" and "tsci-xiu." A common weed.—An erect hirsute herb; leaves ovate or deltoid, petiolate, obtuse, crenate; flowers 2.5 cm. long, bright red, racemose.

Salvia Fernaldii Standl. FMB. 8: 41. 1930.

Endemic; type from Chichen Itzá, *Millspaugh 1634;* a frequent weed.—A low herb, the leaves slender-petioled, deltoid or ovate-deltoid, 1–2 cm. long, crenate, glabrate; flowers in elongate racemes; calyx puberulent or scabrous, without gland-tipped hairs; corolla about 8 mm. long.—The specimens have been referred heretofore to *S. micrantha* Vahl and *S. serotina* Sw.

Salvia micrantha Vahl. *S. occidentalis* Millsp. FMB. 1: 43. 1895, in part, not Sw. *S. serotina* Millsp. FMB. 1: 43. 1895, 2: 94. 1900, not L.

Sp. *Té de Cozumel, Verbena* (Valdez). Common.—A finely pubescent, erect herb, much branched; leaves broadly ovate, 1–4 cm. long, obtuse, serrate, slender-petiolate; flowers 6–10 mm. long, white or blue, in short or elongate racemes; calyx glandular-pubescent.—The plant is used in domestic medicine. Valdez reports that it is employed as a remedy for earache. The name "kaknep" or "kaknipp" is said to be given to it and related species in some parts of Yucatan, this being a corruption of the English "catnip" (*Nepeta cataria* L.).

Salvia obscura Benth. *S. occidentalis* Millsp. FMB. 1: 43. 1895, in part, not Sw.

Sp. *Hierbabuena montés.* A frequent weed.—An erect pubescent herb, much branched; leaves ovate, serrate; corolla 3–5 mm. long; calyx glandular-pilose, the lobes subulate-mucronate.

Salvia occidentalis Sw.

A frequent weed.—A procumbent, pubescent and viscid herb; leaves ovate or broadly ovate, acute or obtuse, serrate; flowers blue, 5 mm. long, in elongate racemes; calyx densely glandular-pubescent, the lobes obtuse.

Scutellaria Gaumeri Leonard, CNH. 22: 742. 1927.

Endemic; type from Pocoboch, *Gaumer 2392.*—A pubescent perennial herb; leaves broadly ovate, petiolate, 1.5–2.5 cm. long, obtuse, crenate; flowers blue, 8 mm. long, in axillary racemes.

Sp. *Agrimonia silvestre* (Valdez), *Claudiosa de monte, Claudiosa amarga.* Occasional.—An erect branched herb, nearly glabrous; leaves coarsely crenate or the upper deeply lobed; flowers axillary, fasciculate, pedicellate.—Employed as a remedy for pains in the back, and as a tonic.

This is perhaps the plant listed by Cuevas (Pl. Med. 99, Ilustr. *pl. 12, f. 3.* 1913) as *Melissa officinalis.*

A plant listed by Mercer with the name "sitz," and said to be used for flavoring posole, may well be a member of this family.

SOLANACEAE. Potato Family

Capsicum annuum L.

Ic. Sp. *Chile,Ají.* Extensively cultivated.—*Pepper.* An American plant, but scarcely known in the wild state. Chile is much used in Yucatan, as well as in other parts of Mexico, for flavoring food, and it was employed also by the early inhabitants. Many varieties

are grown, differing in the size and flavor of the fruit. The following are named by various writers: "xubala," a large, very hot form (Motul Dict.); "bolol," "chile grande" (Motul Dict.); "a'h'maxic," a small, very hot variety, possibly *C. baccatum;* "yaaxic," "chile verde"; "chacic," "chile colorado"; "chuhucic," "chile dulce"; also "chile mulato," "chile ancho," and "chile morado." "Icil" is a sauce made of chile. The root is reputed poisonous. An infusion of the leaves is used in fomentations to heal skin eruptions on young children, and the fruit is applied as a poultice to produce rubefaction or blistering.

Capsicum frutescens L. *C. baccatum* L.; *C. chlorocladum* Loes. Repert. Sp. Nov. 18: 355. 1922, perhaps not Dunal.

Maaxic (Gaumer), *Max* (Seler). Sp. *Chile del monte, Chilillo.* Common.—A small shrub; leaves ovate, acute, entire; fruit globose or ellipsoid, 5–10 mm. long.—This is a wild plant with very acrid fruits.

Cestrum diurnum L.

Sp. *Juan de noche, Dama de noche.* Frequent.—A shrub, glabrous or nearly so; leaves short-petioled, oblong, acute or obtuse, entire; flowers white, 8–12 mm. long, in short-stalked axillary cymes; fruit a black berry 6 mm. long.

Cestrum nocturnum L.

Akabyom (Yuc., Petén). Sp. *Galán de noche.* Frequent.—A shrub 1–4 m. high, glabrous or nearly so; leaves short-petioled, oblong-lanceolate, acuminate; flowers greenish white, 2–2.5 cm. long, in axillary cymes; fruit white, 8–10 mm. long.—The flowers are very fragrant at night.

Datura innoxia Mill. *D. Stramonium* Millsp. FMB. 1: 44. 1895, in part, not L. *D. Metel* Millsp. FMB. 1: 318. 1896, not L.

Xtohku (Gaumer). Sp. *Chamico.* Izamal and Chichankanab, cultivated and perhaps wild; native of tropical America.—A large coarse herb, finely grayish-pubescent; leaves petioled, broadly ovate, acute, coarsely sinuate-dentate; flowers axillary, white, fragrant, 15–18 cm. long; capsule spiny, pubescent.—This plant, like others of the genus, has narcotic properties, and it is used in local medicine.

Datura Stramonium L. *D. Tatula* L.

Tohku (Gaumer), *Mehenxtohku* (Gaumer). Sp. *Chamico.* An occasional weed about settlements.—*Jimson-weed.* A coarse ill-

scented herb, glabrous or nearly so; leaves ovate, sinuate-lobate; flowers white or violet, 10 cm. long; capsule spiny, glabrous.—The seeds contain a narcotic poison. Their tincture or the crushed leaves are applied externally for rheumatism, neuralgia, and headache. The tincture is sometimes administered internally, but its use is dangerous. For this species the names "lap" and "machul" are reported from Guatemala.

Datura suaveolens Humb. & Bonpl.

Sometimes cultivated for ornament; native of tropical America. —A large shrub; leaves mostly entire, villosulous or glabrate; flowers white, pendent, 25–30 cm. long, sweet-scented, opening in the evening.

The closely related *D. candida* (Pers.) Pasq. is called "koxas" in Quiché, and "kereba-punt" in Kekchí.

Lycianthes sideroxyloides (Schlecht.) Bitter. *Solanum sideroxyloides* Schlecht.

Without locality, *Gaumer 24212.*—A woody vine, stellate-pubescent; leaves ovate or elliptic, obtuse or acute, entire; flowers small, white, fascicled in the leaf axils; calyx with 10 short narrow teeth; fruit a berry.

Lycium carolinianum Walt.

Frequent on sea and lake shores.—A glabrous spiny shrub with trailing or recurved branches; leaves narrowly spatulate, 3 cm. long or less, fleshy; flowers purplish, fasciculate, 12 mm. broad; fruit a small red berry.

Lycopersicum esculentum Mill. *Solanum Humboldtii* Millsp. FMB. 1: 44. 1895, perhaps not Willd. *Solanum Lycopersicum* L.

Ppac (Gaumer; written also "pac" and "paak"), *Tsulubppac* (Gaumer; small-fruited wild form; name recorded erroneously as "zunumbak"). Sp. *Tomate, Jitomate* (wild form). Cultivated commonly, also wild.—*Tomato.* The tomato is one of the common vegetables of tropical America, and is native in the region. The wild plants have small fruits as large as cherries. Cuevas reports that the ripe fruits are applied to burns to relieve the pain. In the various Guatemalan dialects the following names are applied to the tomato: "pix," Quiché; "pixb," "pixp," Quiché, Pokonchí; "ixpix," Chuje, Jacalteca; "xcoya," Mame; "pai'c," Ixil; "ch'ut," Ixil, the wild form.

Nicotiana rustica L.

Noholcikutz (Gaumer). Mérida, *Schott 486*.—A viscid-tomentose annual; leaves petioled, ovate to oblong, cordate to rounded at the base, obtuse or rounded at the apex; flowers small, about 2.5 cm. long, yellowish or greenish, the narrow corolla with very short lobes.—There is some uncertainty regarding the determination of the specimen, which has been referred to *N. glutinosa* L. Schott's label gives no indication as to whether the plant was found wild or in cultivation.

Nicotiana Tabacum L. *N. pilosa* Millsp. FMB. 1: 388. 1898, not Dunal.

Kutz (Gaumer; written also "kuutz" and "cuutz"). Sp. *Tabaco*. Cultivated commonly, and occasionally found as an escape; native of tropical America.—*Tobacco*. Tobacco of good quality is grown for local consumption, and the manufacture of cigars for export has been an industry of some importance in Yucatan. Tobacco has been used for many centuries by the Mayas. The chewed leaves are applied to insect bites, and their tincture is employed as a lotion to remove garrapatas (ticks). The powdered leaves are applied to sores upon animals to destroy insect larvae. In the Pokonchí dialect tobacco is called "si'c"; in Aguacateca "si'ch"; in Mame and Chuje "sii'c."

Gaumer gives the name of *N. pilosa* as "kutzikax" and "tabaco cimarrón."

One or more species of *Petunia* probably are grown for ornament in Yucatan.

Physalis Lagascae R. & S.

Pacunilek (Gaumer). Frequent.—An erect branched annual, sparsely pubescent; leaves long-petioled, broadly ovate, entire or nearly so, acuminate; flowers axillary; corolla greenish yellow; fruit a globose berry, enclosed in an inflated bladdery calyx 16–18 mm. long.

Physalis mayana Standl. FMB. 8: 42. 1930.

Endemic; type, *Gaumer 24381;* Chichankanab, *Gaumer 1504;* San Felipe, *Gaumer 1421;* without locality, *Gaumer 1000*.—Plants suffrutescent, the branches densely stellate-tomentose; leaves broadly ovate or rhombic-ovate, 6–15 cm. long, acute or short-acuminate, narrowed at the base and long-decurrent; fruiting calyx broadly ovoid, 3 cm. long, finely pubescent with chiefly branched hairs.

Physalis nicandroides Schlecht. *P. barbadensis* var. *obscura* Millsp. FMB. 1: 318. 1896, not Rydb.

Frequent in moist soil.—A coarse branched viscid-pubescent annual; leaves large, broadly ovate, coarsely sinuate-dentate; calyx in fruit 3–5 cm. long.

Physalis pubescens L. *P. foetens* Millsp. FMB. 1: 388. 1898, not Poir.

Paccanil (Gaumer), *Pacnul* (Gaumer); reported also as "paccanul." Sp. *Farolito.* A common weed.—A viscid-pubescent annual; leaves broadly ovate, repand-dentate or nearly entire; corolla yellow, with a brown-purple center; fruiting calyx 2.5–3 cm. long.—The juice of the leaves is placed in the ears to relieve earache.

Physalis viscosa L. *P. mollis* var. *cinerascens* Millsp. FMB. 1: 318. 1896, not Gray.

Pahabcan (Gaumer), *Pacnul.* Occasional in moist soil.—*Ground-cherry.* A perennial, stellate-pubescent; leaves obtuse, entire or undulate; corolla greenish yellow, with dark center; fruiting calyx 2–3 cm. long.

Schwenkia americana L.

Xayulolxiu (Gaumer). Frequent.—A slender, erect, simple or branched annual, pubescent; leaves alternate, petioled, lanceolate to ovate, entire, usually acute; flowers small, purplish green, in panicled racemes; fruit a small capsule.

Solanum amazonium Ker. *S. fuscatum* Millsp. FMB. 1: 388. 1898, not L.

Xkomyaxnic (Gaumer; reported as "xkon-yaxik"), *Pacanul* (Schott). Common.—A small shrub, densely stellate-pubescent, prickly; leaves oval or ovate, shallowly sinuate-lobate, often prickly; cymes few-flowered, the corolla violet, 4–5 cm. broad; fruit 1.5 cm. in diameter, glabrous, partly enclosed in the large accrescent calyx.

Solanum bicolor Willd. *S. callicarpaefolium* Kunth & Bouché. *S. verbascifolium* Millsp. FMB. 1: 44. 1895, in part, not L.

Frequent in thickets.—A shrub 1–2 m. high, unarmed, densely stellate-pubescent; leaves elliptic to oblong-lanceolate, 10–30 cm. long, acute or obtuse, entire; flowers white, 7 mm. long, in dense pedunculate cymes; ovary glabrous; fruit yellow, 6–8 mm. in diameter.

Solanum campechiense L. Sp. Pl. 267. 1753.

Described from Campeche, *Houstoun.*—A very prickly herb; leaves deeply lobed, the lobes sinuate-dentate, stellate-pilose, prickly; cymes few-flowered, the flowers small, violaceous.

Solanum cornutum Lam. *S. rostratum* Millsp. FMB. 1: 389. 1898, not Dunal.

Ixpahalcan (Gaumer). Occasional.—A branched annual herb, densely prickly, sparsely stellate-pubescent; leaves deeply lobed, the lobes often again lobed, prickly; flowers large, yellow, in few-flowered cymes; fruit enclosed in the prickly calyx.

Solanum diversifolium Schlecht.

Izamal, *Gaumer* in 1888.—A prickly shrub 1–2 m. high, densely stellate-tomentose; leaves large and broad, sinuate-lobate; flowers white, in stalked cymes; fruit 1–1.5 cm. in diameter.

Solanum hirtum Vahl. *S. jamaicense* Millsp. FMB. 1: 389. 1898, not Mill.

Putbalam (Gaumer; "tiger papaya"). Frequent.—A large, very prickly herb or shrub; leaves large, densely stellate-tomentose, cordate at the base, sinuate-lobate, usually prickly beneath; cymes few-flowered, the corolla white, 1.5 cm. long; fruit 2 cm. in diameter, covered with long soft hairs.—An infusion of the fruit is considered an excellent remedy for sore throat, used as a gargle. The crushed fruit is applied also as a poultice.

Solanum lanceifolium Jacq.

Frequent in thickets.—A large woody vine, stellate-pubescent, the stems and leaves armed with numerous short recurved prickles; leaves ovate to oblong, acute or obtuse, entire or nearly so; cymes lateral, few-flowered; corolla white, 9–12 mm. long; fruit orange-red, 1 cm. in diameter.

Solanum mammosum L.

Sp. *Chuchito.* Frequent.—A large branched herb, densely pilose with long soft hairs, armed with long yellow prickles; leaves large, shallowly lobed, the lobes acute; cymes few-flowered, the corolla violaceous, 2 cm. long; fruit orange-yellow, ovoid, mammillate, 3–5 cm. in diameter.—A decoction of the leaves is used for cleansing wounds. The dried and powdered leaves are used for the same purpose, and especially as an application to wounds caused by the bites of dogs. The Kekchí name is "kantu," "yellow breast," in allusion to the form of the fruit. The fruit is reputed very poisonous.

Solanum Melongena L.

Sp. *Berengena*. Commonly cultivated; of Asiatic origin.—*Egg-plant.*

Solanum nigrum L. *S. havanense* Millsp. FMB. 1: 44. 1895, not Jacq. *S. nigrum* var. *nodiflorum* Gray; *Physalis angulata* Millsp. FMB. 1: 388. 1898, not L.

Pahalcan (Gaumer); reported as "bahabcan" and "bahalcan." Sp. *Yerbamora*. A common weed.—An annual herb, puberulent or nearly glabrous, unarmed; leaves ovate, sinuate-dentate or entire; flowers small, white, in umbels; fruit a small black berry.—The crushed leaves are applied as poultices to reduce inflammation and to bring boils to a head. Cuevas states that the plant is considered poisonous, but in some parts of Central America it is eaten as a pot herb. The Motul Dictionary gives the name as "pahalcan," "pakalcan," and "pakcan." The Quiché name is "imut," the Kekchí name "mah kui." Other Guatemalan names are listed as "challuc," "yemoch," "mup," and "amoche."

Solanum Seaforthianum Andrews.

Sp. *Piocha*. Planted for ornament; native of tropical America.—A large scandent shrub, unarmed, sparsely pubescent; leaves pinnately divided, the 3 or 5 leaflets entire; flowers violet, 1 cm. long, in dense cymes; fruit red.

Solanum torvum Sw.

Chelic (Gaumer), *Tompaap*. Sp. *Prendedora*. Frequent.—A shrub 1–3 m. high, armed with short prickles, stellate-pubescent; leaves broadly ovate, sinuate-lobate; flowers white, 10–12 mm. long, in small short-stalked cymes; fruit yellow, 1–1.5 cm. in diameter.—The plant is reputed to have narcotic, diuretic, diaphoretic, and resolutive properties. It has been employed locally in treating convulsions, coughs, asthma, gout, rheumatism, syphilis, and cutaneous diseases.

Solanum tuberosum L.

Sp. *Papa*.—The potato, native of the Andes, has been grown in Campeche and Yucatan, but it does not thrive in so hot a region. The Pokonchí name of the potato is "caxlan is," "white sweet potato."

Solanum verbascifolium L.

Tonpaap (Gaumer), *Tukux* (Valdez); reported as "tompaap" and "xaxox." Frequent.—A shrub 2–3 m. high, densely stellate-

pubescent, unarmed; leaves ovate to lanceolate, acute, entire; flowers white, 7–9 mm. long, in long-stalked cymes; ovary stellate-pubescent; fruit yellowish, 1 cm. in diameter, stellate-pubescent.—The plant is utilized like *S. torvum* in local medicine.

Solanum yucatanum Standl. FMB. 8: 43. 1930. *S. juripeba* Millsp. FMB. 1: 389. 1898, not Rich.

Heehbech (Gaumer). Endemic; type from Bocas de Tsilám, *Gaumer 24352;* Chichankanab, *Gaumer 2000.*—A shrub, the branches rather densely covered with stipitate few-branched hairs, armed with short broad compressed prickles, oblong or elliptic-oblong, 3–6.5 cm. long, obtuse or acutish at the apex, rounded or obtuse and very unequal at the base, entire, stellate-tomentose beneath, the costa often armed beneath with 1–2 short prickles; corolla 7 mm. long; fruit globose, glabrous, 8 mm. in diameter.

The plant reported by Cuevas (Pl. Med. 98. 1913) as "telesku" and "berenjena" is apparently a *Solanum*, but the species is doubtful. He states that the plant has the properties of belladonna, and that the crushed leaves, with oil, are applied as poultices to reduce inflammation.

SCROPHULARIACEAE. Figwort Family

Angelonia angustifolia Benth.

Sp. *Boca de la vieja.* Cultivated and perhaps native.—An erect, simple or branched, glabrous herb; leaves opposite, linear to lanceolate, sessile or petiolate, serrate; flowers blue, 1.5–2 cm. broad, racemose.—Often planted in Central America because of its showy flowers. Valdez reports that the plant is employed as a tonic in the case of nervous affections.

Bacopa Monnieri (L.) Wettst. *Monniera Monniera* Britton.

Yaaxcach (Gaumer); reported as "xaxcach." Occasional in wet soil.—A glabrous fleshy creeping perennial herb; leaves spatulate, sessile, entire or denticulate, 6–20 mm. long, rounded at the apex; flowers axillary, pediceled, pale blue, about 1 cm. broad.

Bacopa procumbens (Mill.) Greenm. *Monniera procumbens* Millsp.; *B. procumbens* var. *Schottii* Greenm. FMB. 2: 262. 1907.

Xacanlum (Gaumer), *Xnokak* (Gaumer). Frequent in moist soil.—A glabrous branched perennial herb, usually decumbent; leaves ovate or oval, 1–2 cm. long, petioled, obtuse or acute, serrate;

flowers axillary, yellow, 1 cm. long.—The type of var. *Schottii* was collected at Mérida, *Schott 616*.

Buchnera pusilla HBK. *B. mexicana* Millsp. FMB. 1: 45. 1895, 1: 389. 1898; Millsp. & Loes. BJE. 36: Beibl. 80: 26. 1905, perhaps not Hemsl.

Cabalchichibe (Gaumer). Frequent in dry soil.—A rough-pubescent, erect, simple or branched herb; leaves mostly opposite, linear; flowers small, pink or white, in elongate spikes.

Capraria biflora L. *C. biflora* var. *pilosa* Griseb.

Chocuilxiu (Gaumer), *Pasmoxiu* (Petén; a mixture of Spanish and Maya). Sp. *Claudiosa*. A common weed.—An erect herb, pubescent or glabrate; leaves alternate, oblanceolate or oblong, serrate, acute; flowers axillary, long-pedicellate, 1 cm. long, white.—The plant is much used in domestic medicine. An infusion is employed as a bath or lotion in all uterine and ovarian complaints. A decoction of the leaves is administered as a remedy for diabetes, leucorrhea, and gonorrhea.

Capraria saxifragaefolia Schlecht. & Cham. *C. biflora* var. *pilosa* Millsp. FMB. 1: 45, in part, 1895, not Griseb. *C. biflora* Millsp. FMB. 1: 319, in part. 1896, 1: 389, in part. 1898, 2: 98, in part. 1900, not L.

Sp. *Claudiosa*. Frequent.—An erect herb, glandular-pubescent; leaves ovate, obtuse, crenate-serrate; flowers nearly sessile.

Castilleja communis Benth. *C. arvensis* Millsp. FMB. 1: 319. 1896, not Schlecht. & Cham.

Sp. *Hierba del cáncer*. Occasional.—A perennial herb, erect, pilose; leaves lanceolate or linear, entire; flowers small, in terminal spikes, subtended by red bracts.

Conobea pusilla (Benth.) Benth. & Hook.

Occasional in wet soil.—A small slender branched annual, nearly glabrous; leaves dissected into linear lobes; flowers small, yellowish, axillary; capsule linear.

Gerardia maritima var. **grandiflora** Benth. *G. cereifera* Millsp. FMB. 2: 98. 1900. *Agalinis maritima* var. *grandiflora* Pennell.

Known in Yucatan only from *Millspaugh 1702*, from Progreso, the type of *G. cereifera*.—A slender herb; leaves linear; flowers purple, in terminal racemes, long-pediceled; corolla 1.5–2 cm. long.

Russelia campechiana Standl. CNH. 23: 1309. 1924.

Type collected at Apazote, Campeche, *Goldman 467;* also in British Honduras.—An herb, nearly glabrous, the stems 4-angled; leaves ovate, acuminate, entire; flowers red, tubular, 13 mm. long.

Russelia equisetiformis Schlecht. & Cham. *R. juncea* Zucc.

Sp. *Coralillo.* Cultivated for ornament.—A glabrous herb, the leaves small and caducous; peduncles long and filiform, 1–3-flowered; corolla red, 2 cm. long.—A handsome plant, perhaps native of Mexico, but probably not known in the wild state.

Russelia sarmentosa Jacq.

Occasional.—Plants nearly glabrous, the stems 4-angled; leaves broadly ovate, subsessile, acute to rounded at the apex, serrate; flowers red, 1 cm. long.

Stemodia durantifolia (L.) Sw.

Occasional in moist soil.—An erect, branched, pubescent and glandular herb; leaves opposite, sessile, oblong or narrowly lanceolate, serrate; flowers small, purple, in leafy racemes, the corolla glandular-pubescent.

Stemodia maritima L. *Capraria biflora* Millsp. FMB. 2: 98. 1900, in part, not L.

Cozumel Island, *Millspaugh 1535.*—An erect, pubescent and viscid, branched herb; leaves oblong, sessile, serrate; flowers purplish, nearly sessile in the leaf axils; corolla glabrous.

LENTIBULARIACEAE. Bladderwort Family

Utricularia obtusa Sw.

Without locality, *Gaumer 913;* Xcholac, *Gaumer 430.*—A small aquatic herb; leaves divided into capillary segments, these bearing few minute bladders; flowers small, yellow, racemose on a slender scape.

PEDALIACEAE. Sesame Family

Sesamum orientale L. *S. indicum* L.

Zicilpuuz (Gaumer); listed also as "sicilpus" and "mehensial." Sp. *Ajonjolí.* Cultivated and also escaped; native of the East Indies.—*Sesame.* An erect pubescent annual; leaves opposite and alternate, the lower lobed or parted, the upper lanceolate; flowers white or pink, 2–3 cm. long, axillary; capsule oblong, 2–3 cm. long,

2-celled.—The seeds are used for flavoring food. The plant has been grown extensively in Yucatan for the oil which is extracted from the seeds. A decoction of the seeds is given to children as a laxative, and it is applied externally for skin eruptions.

MARTYNIACEAE. Unicorn-plant Family

Martynia annua L. *M. diandra* Glox.

Chucchikil (Gaumer). Sp. *Uña del diablo.* An occasional weed.—A large coarse viscid-pubescent herb; leaves opposite, ovate-orbicular, 8–15 cm. long, sinuate-dentate; flowers pink or whitish, 3–5 cm. long, blotched with purple; fruit a woody capsule 2–2.5 cm. long, obliquely ovoid, with a short hooked beak.

BIGNONIACEAE. Bignonia Family

Adenocalymna fissum Loes. Verh. Bot. Ver. Brand. 65: 102. 1923. *Bignonia aequinoctialis* Millsp. FMB. 1: 390. 1898, in part, not L.

Endemic; type from Xkombec, *Seler 4034;* Buena Vista Xbac, *Gaumer 1068;* Chichankanab, *Gaumer 2440, 1098.*—A large woody vine; leaves 2-foliolate, often with a terminal tendril, the leaflets ovate or ovate-lanceolate, puberulent on the nerves; calyx 8 mm. long, villosulous, conspicuously nerved and dentate; corolla 4.5–5 cm. long, puberulent outside, pink or purple.

Adenocalymna heterophyllum Standl. FMB. 8: 49. 1930. *Bignonia aequinoctialis* Millsp. FMB. 1: 390. 1898, in part, not L.

Endemic; type from Kancabtsonot, *Gaumer 23889;* without locality, *Gaumer 1098.*—A large woody vine; leaflets 3, elliptic, acute, rounded, or deeply emarginate at the apex, minutely lepidote or nearly glabrous; calyx truncate, 6–7 mm. long; corolla 6–7.5 cm. long, the tube elongate, dilated upward, densely villous-tomentose outside, the rounded lobes about 1.5 cm. long.

Adenocalymna punctifolium Blake.

Chichankanab, *Gaumer 23715.*—A woody vine; leaflets 2, oblong-ovate, acuminate, subcordate, pilosulous, dotted beneath with large glands; corolla creamy white, 4 cm. long, puberulent; calyx dentate, densely puberulent.

Adenocalymna Seleri Loes. Verh. Bot. Ver. Brand. 65: 101. 1923. *Bignonia aequinoctialis* Millsp. FMB. 1: 390. 1898, in part, not L.

Oppolche (*Seler*). Type collected between Ticul and Tabí, *Seler 3901;* Chichankanab, *Gaumer 2162;* Buena Vista Xbac, *Gaumer 1068;* Kancabtsonot, *Gaumer 23844.*—A woody vine; leaflets ovate-lanceolate to broadly ovate, villosulous and glandular-punctate beneath or nearly glabrous; calyx 6–8 mm. long, sparsely villosulous, conspicuously nerved, dentate; corolla puberulent, 3–3.5 cm. long.

Amphilophium paniculatum (L.) HBK.

Near Satscabá, *Schott 886.*—A small woody vine; leaflets 2 or 3, rounded-ovate, short-acuminate, often cordate at the base, minutely lepidote beneath; flowers pinkish white, 3–4 cm. long; calyx bearing 2 or 3 lobelike appendages within; capsule oblong-elliptic, 8–10 cm. long, 4 cm. wide.

Arrabidaea floribunda (HBK.) Loes. Repert. Sp. Nov. 16: 209. 1919. *Bignonia floribunda* HBK. Nov. Gen. & Sp. 3: 134. 1818. *B. aequinoctialis* Millsp. FMB. 1: 390. 1898, in part, not L. *B. mollis* Millsp. FMB. 1: 390. 1898, not Vahl.

Zacak (Gaumer), *Anicab* (Schott). Frequent in thickets; type from Campeche.—A large woody vine; leaflets 2 or 3, elliptic to broadly ovate, acute or obtuse, glabrous, purplish when dried; flowers purple, 1.3–1.8 cm. long, puberulent, in large panicles.—Other closely related species are used in some regions as dye plants, and this one may have been so utilized by the Mayas. Schott states that the vine is much used for binding in the construction of thatched roofs.

Bignonia unguis-cati L.

Xkanlolak (Gaumer), *Ek-kixilak* (Gaumer). Frequent.—A woody vine, climbing by means of sharp-pointed hooked tendrils, often with aerial roots; leaflets 2, lance-oblong to broadly ovate, acute; flowers yellow, 4.5–7 cm. long; capsule linear, 30–40 cm. long, 1–1.5 cm. wide.—The name "chacanicab" has been reported, but probably in error. This is apparently the plant reported by Cuevas (Pl. Med. 109. 1913) as "xkanak." He states that it is employed as a remedy for diseases of the spleen. The plant listed by him (Pl. Med. 46. 1913) as "ek kixil" also may belong here.

Crescentia Cujete L. *C. cuneifolia* Gardn.

Luch (Gaumer), *Huaz* (Gaumer). Sp. *Jícara, Güiro. Calabash, Wild calabash* (B. H.). Common.—A small tree; leaves clustered, oblanceolate or spatulate, entire, glabrous or puberulent; flowers green and brown-purple, 5–8 cm. long, borne on the trunk and

larger branches.—The fruits, which resemble gourds, vary greatly in size and shape. They are sometimes oval and 15 cm. long, but frequently globose and 30 cm. in diameter. They are very important because of their use as kitchen utensils, being employed generally as receptacles for water and many other substances. The soft close-grained flexible wood is sometimes utilized for construction purposes. A sirup prepared from the pulp of the fruit is a popular remedy for affections of the chest. An infusion of the leaves is administered as an astringent for diarrhea, and is applied to the hair to promote growth, and stop its falling. In Kekchí the tree is called "hom."

Cydista aequinoctialis (L.) Miers. *Bignonia aequinoctialis* L.

Chacanicab (Gaumer). Common in thickets.—A large woody vine; leaflets 2, oblong to ovate, acute, glabrous or pubescent; corolla pink or pale purple, lepidote outside, 5–8 cm. long; capsule linear, 25–40 cm. long, the seeds winged.—Called "bejuco treslomos" in Tabasco. The tough flexible stems of this and other vines of the family are used like twine.

Cydista diversifolia (HBK.) Miers, Proc. Hort. Soc. Lond. 3: 192. 1863. *Bignonia diversifolia* HBK. Nov. Gen. & Sp. 3: 133. 1818.

Chacnetoloc (Gaumer), *Anicab* (Schott); *Zolak* (Schott); reported also as "tsolak" and "xcolak." Frequent in thickets; type from Campeche.—A woody vine; leaflets broadly ovate to oblong-elliptic, acuminate, glabrous or pubescent, often cordate; corolla purple, finely puberulent or lepidote, 3–4 cm. long.

Lundia Schumanniana Kränzlein, Repert. Sp. Nov. 17: 120. 1921. Described from Campeche, but, according to the author, the locality is doubtful.

Parmentiera aculeata (HBK.) Seem. Bot. Voy. Herald 183. 1854. *Crescentia aculeata* HBK. Nov. Gen. & Sp. 3: 158. 1818. *P. baculis* Dondé, Emulación 3: Apend. 13. 1878. *P. cereifera* Millsp. FMB. 1: 390. 1898, not Seem.

Cacuuc (Gaumer); listed also as "catcuuc," "katzuz," "katcuuc," "catcuuk" (Dondé). Sp. *Pepino de ardilla.* Cultivated and wild; type from Campeche.—A shrub or small tree, armed with short stout spines; leaves 3-foliolate, the leaflets rounded to obovate, 1–3 cm. long, rounded at the apex, often toothed, glabrous or puberulent; flowers large, greenish, borne on young branches; fruit terete, fleshy, 15–25 cm. long, 1 cm. thick, yellow, ripening in October.—The fruit is edible when cooked.

Parmentiera edulis DC.

Cat (Gaumer); reported also as "kaat." Sp. *Pepino de árbol, Cuajilote* (Camp.; of Nahuatl derivation). *Cow okra* (B. H.). Cultivated and perhaps native, at least in the southern part of the Peninsula.—A small tree, armed with short spines; leaflets elliptic or obovate, 3–8.5 cm. long, usually acute, entire; flowers greenish white, 7 cm. long; fruit fleshy, 10–16 cm. long, 2 cm. thick or more. —The fruit is eaten raw or cooked, and is sometimes pickled or preserved. It is also reputed to have diuretic properties, and is eaten to relieve pain in the kidneys. An infusion of the root is administered as a remedy for diabetes.

Pithecoctenium echinatum (Jacq.) Schum. *P. hexagonum* DC. *P. Aubletii* Millsp. FMB. 2: 99. 1900, perhaps not Splitg.

Xachextabay (Gaumer), *Netoloc* (Gaumer, "iguana-tail"), *Xtabay* (Flores). Sp. *Peine de mico* ("monkey comb"). Common in thickets. —A large or small, woody vine; leaflets 2 or 3, ovate or rounded-ovate, often cordate at the base, finely lepidote and often pubescent; flowers dirty white, 4.5–5 cm. long; fruit a woody compressed capsule, oblong or elliptic, 15–20 cm. long, 4.5–6.5 cm. wide, covered with hard sharp tubercles.—The stems are used for tying fences and roofs, and the pods to make toys for children. The name "xachextabay" is derived from "xach" or "xachah," to comb, and "xtabay," an apparition in the form of a woman, dressed as a mestiza, who appears, combing her beautiful hair with a pod of this vine, in isolated spots in the villages.

Tabebuia chrysantha (Jacq.) Nicholson.

Hahauche (Gaumer). Frequent.—A small deciduous tree; leaves digitately 5-foliolate, the leaflets obovate, acuminate, stellate-pubescent or glabrate, entire or serrate; flowers bright yellow, clustered at the ends of the branchlets; capsules linear, 20–30 cm. long, often tuberculate.—The wood is dark and very hard.

Tabebuia pentaphylla (L.) Hemsl.

Hokab (Maler). Sp. *Roble* (B. H.), *Maculís, Maquiliz* (B. H.; of Nahuatl derivation), *Macuilixuatl* (Maler; Nahuatl). *Mayflower* (B. H.). Common in the southern part of the Peninsula.—A medium-sized deciduous tree; leaflets 5, oblong to oblong-ovate, acute, finely lepidote, entire; flowers pink or purple, 7–10 cm. long, in corymbs; capsule 20–35 cm. long, 12 mm. thick.—The wood is of good quality, and useful for cabinetwork and general construction. When loaded

with its beautifully colored flowers, in spring, this is one of the most beautiful of Central American trees.

Tecoma stans (L.) HBK. *T. sambucifolia* Dondé, Apuntes 70. 1907, perhaps not HBK.

Kanlol (Gaumer). Sp. *Tronador, Sauco amarillo, Flor amarilla.* Common, at least in cultivation; planted for ornament.—A shrub or small tree; leaves pinnate, the leaflets 5–13, serrate, pubescent or glabrous; flowers bright yellow, panicled, 3.5–5 cm. long; capsule linear, 10–20 cm. long.—The leaves and flowers are used as a tonic, and the bark as a diuretic. Valdez states that the decoction of the leaves and flowers is employed as a bath in the treatment of dropsy. The Kekchí name is reported as "chakte." The name "candox" is recorded as in use in Chiapas.

OROBANCHACEAE. Broom-rape Family

Orobanche sp.? *Cytinus hypocistis* Lanz, Agricultor 10[11]: 9. 1923. *Caetera hydnorea* Flores, Agricultor 10[15]: 18. 1923.

Muchcok, Acam.—This plant, well described by Lanz, probably belongs to this genus, but no material is available for study. It is parasitic upon roots of *Prosopis*, and is described as a tomentose fleshy purplish plant with bracted stems and crowded bilabiate flowers having 4 stamens.

ACANTHACEAE. Acanthus Family

Aphelandra Deppeana Schlecht. & Cham. *A. pectinata* Willd.; *A. Haenkeana* Nees.

Chaccankilxiu (Gaumer). Common in thickets.—A shrub 1–3 m. high; leaves ovate-elliptic to lance-oblong, entire, acuminate, usually pubescent beneath; flowers bright red, 4 cm. long, in dense bracted spikes; bracts serrate, appressed.—Called "añililo" and "añil cimarrón" in Tabasco. The name "chakanal" is reported from British Honduras.

Blechum pedunculatum Donn. Smith. *Ruellia Tweediana* Millsp. FMB. 1: 320. 1896, in part, not Griseb. *R. geminiflora* Millsp. FMB. 1: 391. 1898, in part, not HBK.

Yamcotil (Gaumer). Occasional.—A small perennial herb, grayish-strigillose; leaves ovate, acute; flowers clustered at the ends of the stems, purple, 2.5 cm. long.

Blechum pyramidatum (Lam.) Urban. *Blechum Brownei* Juss.; *Blechum blechoides* Millsp. FMB. 1: 320. 1896, perhaps not Hitchc. *Blechum Blechum* Millsp.

Akabxiu (Gaumer). A common weed.—A small puberulent herb, erect or decumbent; leaves ovate, acute; flowers in dense bracted 4-sided spikes, the bracts ovate, ciliate; corolla purplish, slightly longer than the bracts.—This is one of the most abundant weeds of Central America. Valdez states that the plant has refrigerant properties.

Bravaisia tubiflora Hemsl. in Hook. Icon. Pl. 16: *pl. 1576.* 1886.

Hooloop (B. H.; "hulub?"). Common along the coast and on lake shores; endemic; type from Cozumel Island, *Gaumer 52.*—A shrub 1–2 m. high, or reported as a tree of 7.5 m.; leaves elliptic or oblong-elliptic, 4–7 cm. long, glabrate, obtuse; flowers purplish, 2–2.5 cm. long, in leafy-bracted cymes.

Dicliptera assurgens (L.) Juss. *Diapedium assurgens* Kuntze.

Nimiz (Gaumer). Sp. *Pensamiento.* Common.—An erect herb, 1–1.5 m. high, glabrous or nearly so, the branches angled; leaves ovate or lanceolate, often deciduous, acute or obtuse; flowers in small bracted clusters arranged in long spikes; corolla red, 2–2.5 cm. long.—Some of the Yucatan material has been referred to *D. mollis* Nees, but it is doubtful whether that is distinct from *D. assurgens.* The plant is reported by Valdez to be employed as a remedy for asthma.

Drejerella longipes Standl. FMB. 8: 47. 1930.

Endemic; type from Chichen Itzá, *Millspaugh 1621;* Buena Vista, *Gaumer* in 1899.—A low erect herb, densely soft-pubescent; leaves rounded-ovate, 7–17 mm. long, acute, the petioles slender, longer than the blades; flowers in dense bracted spikes, the bracts contracted into short petioles, broadly ovate, obtuse; corolla white, glabrous, 11 mm. long.

Elytraria bromoides Oerst. *Tubiflora squamosa* Millsp. FMB. 1: 320. 1896, in part, 2: 99. 1900, not Kuntze.

Chichankanab, *Gaumer 1833;* Mérida, *Schott;* Kancabtsonot, *Gaumer 23783,* in part; Chichen Itzá, *Millspaugh 1622.*—A small perennial herb; leaves basal, oblong-oblanceolate, obtuse; flowers small, white, in very dense, bracted spikes; bracts lanceolate, entire, closely appressed and imbricate.

Elytraria squamosa (Jacq.) Lindau. *Tubiflora squamosa* Kuntze.

Cabalxaan. A common weed.—A small herb with short leafy stems; leaves usually clustered at the base of the inflorescence, oblanceolate, often dentate, acute; flowers small, purple, in slender spikes; bracts hard, imbricate, 3-dentate at the apex, with a thin appendage on each side.—An infusion of the plant is a local remedy for bronchitis and coughs.

Jacobinia leucothamna Standl. FMB. 8: 44. 1930.

Endemic; type from Silám, *Gaumer 1242;* also *Gaumer 2280,* from the same locality.—A shrub 2 m. high with whitish branches; leaves broadly elliptic, 2–4.5 cm. long, rounded and apiculate at the apex, velvety-pubescent beneath; flowers in very short spikes, the bracts subulate; sepals lance-subulate, 2.5 mm. long; corolla white, 8–9 mm. long, pilose.

Jacobinia spicigera (Schlecht.) L. H. Bailey. *Jacobinia mohintli* Hemsl.

Yichcaan (Cuevas), *Siitz* (B. H.). Wild and also planted about houses.—A shrub 1–2 m. high; leaves oblong to ovate, acute, glabrate; flowers in small, axillary or terminal cymes; corolla red, 3–3.5 cm. long.—The leaves in hot water give a dark blue infusion, which is used like indigo, for whitening linen. Cuevas states that the plant probably was employed by the ancient Mayas for painting. This is perhaps the plant listed by Pérez under the name "tzitz." The Quiché name is "kaxabal"; the Kekchí name, "kakixuxul."

Justicia carthaginensis Jacq. *Beloperone violacea* Millsp. FMB. 1: 320. 1896; Millsp. & Loes. BJE. 36: Beibl. 80: 28. 1905, not Planch. & Lind.

Zulub (Gaumer). Frequent.—An erect herb 1 m. high or less, glabrous or nearly so; leaves ovate, acute; flowers purple, in dense bracted spikes; bracts oblong, ciliate; corolla 2.5–3 cm. long.—Some of the Yucatan specimens have been referred to *J. caudata* Gray.

Justicia comata (L.) Lam. (*Dianthera comata* L.; Millsp. FMB. 1: 47. 1895) is reported from Yucatan, collected by Johnson. The species probably occurs in the southern part of the Peninsula.

Justicia myriantha Standl. FMB. 8: 45. 1930.

Endemic; type from Kancabtsonot, *Gaumer 23557;* Buena Vista Xbac, *Gaumer 1102;* Lake Chichankanab, *Gaumer 23718, 23742.*—An erect or decumbent herb; leaves petioled, rounded-ovate, 1.5–4 cm. long, obtuse or acutish, nearly glabrous; flowers in long slender

spikes, these often panicled, many-flowered; bracts subulate, glandular-puberulent; sepals 2.5–3 mm. long; corolla 5 mm. long, glabrous.

Justicia sessilis Jacq. *Siphonoglossa sessilis* Oerst.; *Dianthera sessilis* Griseb.

Frequent.—A low branching herb, sometimes suffrutescent at the base; leaves small, short-petiolate, ovate or elliptic, acute or obtuse, rather copiously pubescent on both surfaces; flowers in very short spikes with subulate bracts; corolla glabrous, apparently white, the very slender tube about 15 mm. long, the obovate lobes less than half as long as the tube.

Louteridium Donnell-Smithii Wats.

Petén.—A large herb or shrub 1–3 m. high; leaves very large, broadly ovate, acute, crenate-dentate, soft-pubescent; flowers dark red, 7 cm. long, in terminal racemes.

Pseuderanthemum nanum Standl. FMB. 8: 46. 1930.

Endemic; type from Silám, *Gaumer 1305;* Progreso, *Gaumer 2295.*—A low perennial with whitish, minutely puberulent, mostly simple stems; leaves leathery, short-petiolate, broadly ovate, obtuse, glabrous, the veins nearly obsolete; flowers in short, very dense spikes, the bracts subulate; sepals subulate-attenuate, 9 mm. long; corolla tube 9 mm. long, slender, the lobes of about the same length, spreading.

Ruellia albicaulis Bert. *R. paniculata* Millsp. FMB. 1: 46. 1895, 2: 100. 1900, not L.

Tsacalbac (Gaumer); reported as "kabauche." Common.—A brittle shrub 1–2 m. high, with a strong disagreeable goatlike odor, glandular-pubescent, the branches whitish; leaves ovate to oblong, acute, usually denticulate; flowers purple, 2–2.5 cm. long, in loose cymes.—The Motul Dictionary lists an "ixtsacalbac," whose roots "are good to cure broken bones."

Ruellia geminiflora HBK. *R. Tweediana* Millsp. FMB. 1: 320. 1896, in part, not Griseb.

Yamcotil (Valdez). Occasional; Mérida, *Seler 3948, Valdez 24;* Izamal, *Greenman 484.*—A low perennial herb, pubescent or glabrate; leaves oblong-ovate to oval, obtuse or acute; flowers pale purple, 2 cm. long.

Ruellia malacosperma Greenm.

Occasional.—A low erect herb, pubescent; leaves oblong or lanceolate, acuminate; flowers purple, 5–6 cm. long, in few-flowered axillary cymes.

Ruellia tuberosa L.

Cabalyaaxnic (Gaumer). Sp. *Hierba de la calentura, Maravilla del monte.* Common.—A perennial herb with fusiform roots, pubescent; leaves ovate or oblong; flowers in stalked cymes; corolla purple, 4–6 cm. long.—A decoction of the plant is used for cleansing sores and wounds, and as a remedy for chest affections.

Tetramerium hispidum Nees.

Zacchilib (Gaumer), *Xhuayumhak* (Valdez). Common in thickets. —A brittle erect herb with pale branches; leaves lanceolate or ovate, acute, pubescent or glabrate; flowers cream-colored, in dense short bracted spikes; bracts broadly ovate, 4-ranked, imbricate, pilose.—The plant is employed by the Indians to remedy suppression of the lochia after parturition.

Tetramerium scorpioides (L.) Hemsl. *Henrya costata* Gray; *T. costatum* Millsp.

Kanzahilxiu (Gaumer), *Xibkuub* (xib-kiik?). Common.—An erect glandular-pubescent branching herb with 4-angled stems; leaves ovate, acuminate; flowers small, cream-colored, in long bracted spikes, the bracts mostly oblong.

PLANTAGINACEAE. Plantain Family

Plantago major L.

Sp. *Llantén.* An occasional weed; introduced from Europe.—A perennial herb, glabrous or pubescent; leaves basal, long-petiolate, broadly ovate, entire or dentate; flowers small, green, in long dense spikes.—The plant is employed locally as a remedy to prevent abortion.

Plantago hirtella HBK. is called "kok-pim" in the Kekchí dialect.

RUBIACEAE. Madder Family

Alseis yucatanensis Standl. FMB. 8: 50. 1930.

Cacao-che (Sp. and Maya). Endemic; type, *Gaumer 24247*, without locality.—A tree; stipules caducous; leaves petiolate, deciduous, obovate, 8–30 cm. long, acuminate at the apex or rounded and short-

acuminate, long-attenuate to the base, sparsely pilose beneath along the nerves or glabrate; flowers in dense racemes; calyx lobes ovate, obtuse; corolla broadly campanulate, 2.5 mm. long; capsules clavate, 14 mm. long, the seeds appendaged at each end.

Asemnanthe pubescens Hook. f. in Benth. & Hook. Gen. Pl. 2: 107. 1873.

Occasional; endemic; type collected by Linden.—A slender shrub or small tree; leaves opposite, lanceolate or ovate, acute, entire, pilose beneath; flowers small, yellow, in axillary fascicles; fruit drupaceous, compressed, orbicular.

Borreria laevis (Lam.) Griseb. *Spermacoce laevis* Lam.; *S. echioides* HBK. Nov. Gen. & Sp. 3: 344. 1819. *S. verticillata* Millsp. FMB. 1: 393. 1898, in part, not L. *S. tenuior* Millsp. FMB. 2: 103. 1900, in part, not L.

Izamal, *Gaumer* in 1888; Cozumel Island, *Millspaugh 1531;* Nohacab, *Schott 972a.*—An annual or perennial herb, sparsely pubescent; leaves oblong to elliptic, 2–4 cm. long, acute or obtuse; flowers white, crowded in the leaf axils; calyx lobes 4.—Type of *S. echioides* from Campeche.

Borreria ocimoides (Burm. f.) DC.

San Pedro, *Gaumer 23872.*—A small glabrous annual; leaves linear to oblong-elliptic, 1–2.5 cm. long; flowers minute, white, clustered in the leaf axils.

Borreria suaveolens Mey. *B. thymifolia* Millsp. FMB. 1: 49. 1895, not Griseb.

Occasional.—An erect perennial herb, scaberulous; leaves linear or lanceolate; flowers small, white, in dense, terminal and axillary heads; calyx lobes 4.

Borreria verticillata (L.) Mey. *Spermacoce verticillata* L. *S. Haenkeana* Millsp. FMB. 1: 49. 1895, not Hemsl.

Nizots (Gaumer; reported incorrectly as "nitsox"). Sp. *Manzanilla de campo.* Common.—A low erect perennial herb, glabrous or nearly so; leaves linear or linear-lanceolate, 2–5 cm. long; flowers white, in dense, terminal and axillary heads; calyx lobes 2.—The plant is employed in the treatment of sores.

Calycophyllum candidissimum (Vahl) DC.

Campeche.—A large tree; leaves oval to ovate, acuminate, glabrous or nearly so; flowers in small corymbs, white; calyx lobes un-

equal, one of them expanded into a large leaflike creamy-white limb; fruit a small capsule.—The wood is hard, heavy, strong, fine-grained, and durable. The tree is a very showy and handsome one when in flower. From Guatemala the names "ucá" and "chulub" are reported.

Chiococca alba (L.) Hitchc. *C. racemosa* L. *C. racemosa* var. *yucatana* Loes. Repert. Sp. Nov. 18: 361. 1922.

Canchacche (Gaumer). Sp. *Cainca.* Common in thickets.—A slender shrub, often subscandent, usually glabrous; leaves short-petioled, lanceolate to oval, 3–8 cm. long, acute, thick; flowers small, white, in simple or panicled racemes; fruit fleshy, white, compressed, orbicular, 4–8 mm. long.—The plant is used as a tonic, diuretic, and purgative, especially in the treatment of dropsy and rheumatism. It is considered also a remedy for snake bites. The type of var. *yucatana* is *Seler 5591*, from Hacienda Yaxche, Distrito de Ticul.

Coffea arabica L.

Sp. *Café.* Native of tropical Africa.—Coffee is grown on a small scale in the region, but the plant does not flourish at such low elevations. It is reported that abandoned plantations of 5 to 10 hectares are still growing and fruiting about Bacalar. These were planted prior to 1858, when the Spanish population was forced to abandon that region.

Cosmocalyx spectabilis Standl. FMB. 8: 56. 1930.

Type, *Gaumer 24270,* without locality; *Gaumer 24219;* also in Michoacán or Guerrero.—A tree 5–8 m. high; stipules narrowly triangular, caducous; leaves slender-petioled, rhombic-obovate or elliptic-obovate, 6–17 cm. long, acuminate, barbate beneath along the costa; flowers in large dense terminal panicles; calyx lobes unequal, one of them expanding into a large, red or purplish, petioled limb 2–3.5 cm. long; corolla 7 mm. long; capsule cylindric, 6–8 mm. long, 2-coccous, the cells 1-seeded.

Coutarea octomera Hemsl. Biol. Centr. Amer. Bot. 4: 101. 1886. *C. acamptoclada* Robins. & Millsp. BJE. 36: Beibl. 80: 28. 1905.

Pailuch (Gaumer); reported also as "cabalkax." Frequent; endemic; type from Cozumel Island, *Gaumer* in 1885; type of *C. acamptoclada* from Umán, *Seler 4044.*—A stout shrub; leaves oval to rhombic-ovate, obtuse, glabrous or nearly so; flowers greenish

yellow, 2.5–5 cm. long, clustered at the ends of the branches, the corolla 8-lobed; fruit a capsule 1.5 cm. long.

Coutarea hexandra (Jacq.) Schum. (*C. speciosa* Aubl.; Millsp. FMB. 1: 48. 1895) has been reported on the basis of a Linden collection, and may occur in the region.

Crusea calocephala DC.

Common.—An erect hirsute annual; leaves lanceolate to ovate, acuminate, slender-petioled; flowers bright pink, in terminal leafy-bracted heads.

Erithalis fruticosa L.

Collected only on Mugeres and Holbox islands.—A glabrous shrub or small tree; leaves short-petioled, orbicular to oblong-obovate, 2–10 cm. long, rounded at the apex, thick; flowers small, white, in axillary cymes; fruit a globose black drupe 2.5–4 mm. in diameter.—The plant is unknown elsewhere in Mexico.

Ernodea littoralis Sw.

Common on seashores; also about Lake Chichankanab.—A shrub, erect or with long prostrate branches; leaves lanceolate or lance-oblong, acute, sessile or nearly so, leathery, glabrous; flowers small, yellow, axillary; fruit yellow, drupaceous.—The fruits are eaten by birds. The plant is unknown elsewhere in Mexico.

Exostema caribaeum (Jacq.) Roem. & Schult.

Zabacche (Gaumer), *Chactsiis* (Schott). Frequent.—A shrub or small tree; leaves ovate to oblong, acuminate, barbate beneath along the costa; flowers solitary in the leaf axils, white, 6–10 cm. long, the corolla lobes linear; fruit a capsule 1–1.5 cm. long.—The wood is hard, strong, close-grained, and brown.

Exostema mexicanum Gray.

Zabacche (B. H.). Kancabtsonot, *Gaumer 23589;* without locality, *Gaumer 24011, 24278;* also in British Honduras.—A shrub or small tree; leaves oblong-ovate to oval, long-acuminate, barbate beneath; flowers 1.5–2 cm. long, in dense terminal cymes.—The bark is very bitter.

Gardenia jasminoides Ellis.

Sp. *Gardenia.* Cultivated for ornament; native of China.—*Cape jasmine.* A shrub with waxy, white, very fragrant flowers.

Guettarda elliptica Sw.

Kiichche (B. H.). *Pricklewood* (B. H.). Frequent in dry thickets.—A shrub or small tree; leaves petioled, oval to rounded or obovate, obtuse or rounded at the apex, appressed-pilose or glabrate, 1–7 cm. long; flowers white, 9–12 mm. long, in few-flowered axillary cymes; fruit a subglobose, nearly dry drupe 4–8 mm. in diameter.

Guettarda Gaumeri Standl. FMB. 8: 58. 1930.

Type, *Gaumer 24239*, without locality; also in British Honduras. —Leaves short-petioled, oblong or oblong-elliptic, 2.5–4.5 cm. long, acute or obtuse and apiculate, at the base broadly rounded to obtuse, very densely pilose beneath with spreading interlaced hairs; cymes mostly 3-flowered; corolla densely pilose with ascending hairs.

Guettarda Seleriana (Loes.) Standl. CNH. 23: 1384. 1926. *G. scabra* Millsp. FMB. 1: 48. 1895, not Lam. *G. scabra* var. *Seleriana* Loes. Repert. Sp. Nov. 18: 361. 1922.

Endemic; frequent; type from Chichen Itzá, *Seler 5574*.—A shrub or small tree; leaves long-petioled, rounded or broadly ovate, 12–16 cm. long, obtuse or rounded at the apex, cordate or subcordate at the base, puberulent and pale beneath; flowers 2 cm. long, in many-flowered bifurcate cymes.—Some of the Yucatan specimens have been distributed as *G. Combsii* Urban.

Hamelia patens Jacq. *H. erecta* Jacq.; *H. lanuginosa* Mart. & Gal.

Kanan (Gaumer; Yucatan, B. H.), *Chactoc* (B. H.). Common.—A shrub or small tree; leaves mostly ternate, lance-oblong to ovate, acute or acuminate, pubescent beneath; flowers tubular, red, 14–20 mm. long, puberulent, in cymes, secund upon the branches; fruit a red or black berry 6–10 mm. long.—The fruit is edible, but not very good. The Kekchí names of the plant are reported by Pittier as "chahmah" and "sikunkhen."

Machaonia Lindeniana Baill. Bull. Soc. Linn. Paris 1: 204. 1879.

Kuchel (Gaumer), *Kampocolche* (Gaumer). Frequent; endemic in Yucatan, Campeche, and British Honduras; type collected in Yucatan by Linden.—A tree 7.5 m. high or less with medium-hard white wood; leaves opposite or verticillate, ovate or elliptic, obtuse or acute, barbate beneath; flowers 3 mm. long, white or cream-colored, fragrant, in dense terminal cymes; fruit small, dry, composed of 2 nutlets.

Mitracarpus hirtus (L.) DC.

Occasional.—A small branched pubescent annual; leaves oblong to elliptic, sessile or nearly so, obtuse; flowers minute, white, in terminal and axillary heads.

Morinda yucatanensis Greenm. FMB. 2: 262. 1907. *M. Royoc* Millsp. FMB. 1: 49. 1895, 1: 321. 1896, 1: 392. 1898; Millsp. & Loes. BJE. 36: Beibl. 80: 28. 1905, not L.

Xhoyoc (Gaumer), *Hooyoc* (Pérez), *Hoyoc* (Cuevas), *Xoyencab* (Gaumer). Sp. *Piñuela* (Petén). Common; endemic; type from Izamal, *Gaumer 362.*—A slender subscandent shrub; leaves lance-oblong to oblong-obovate or elliptic, acute or acuminate, pubescent, attenuate at the base to a short petiole; flowers small, in sessile or short-stalked, globose heads 1 cm. in diameter; fruit a small fleshy yellow syncarp.—Cuevas states that the fruit rubbed upon warts infallibly removes them. The plant is reputed to have corroborative, diuretic, laxative, and astringent properties, and is employed as a tonic for the digestive system, also as a remedy for jaundice and various other affections. According to Pérez, the plant was used by the Mayas for dyeing.

Oldenlandia callitrichoides Griseb.

Frequent in moist places.—A slender delicate creeping perennial herb, forming dense mats, nearly glabrous; leaves rounded, 1.5–3.5 mm. long; flowers minute, white, axillary; fruit capsular.

Psychotria microdon (DC.) Urban. *P. pinularis* Sessé & Moc.

Sp. *Hueso de finado* (B. H.). *Dead man's bones* (B. H.). Kanan, *Gaumer 23398;* without locality, *Gaumer 838, 24213.*—A stout shrub 1–2 m. high, nearly glabrous; leaves petioled, mostly obovate, 4-7 cm. long, obtuse or acute; flowers 15 mm. long, greenish white, in small terminal cymes.

Psychotria pubescens Sw.

Kancabtsonot, *Gaumer 23541.*—A shrub 1–3 m. high; leaves oblanceolate to elliptic, 6–14 cm. long, acuminate, puberulent beneath; flowers in loose corymbs, white; corolla 4 mm. long; fruit a small red drupe.

Psychotria sessilifolia Mart. & Gal. *P. undata* Millsp. FMB. 1: 392. 1898, not Jacq. *P. papantlensis* Standl. CNH. 23: 1391. 1926, in part, not Hemsl.

Sp. *Cancerillo.* Mérida, *Schott 524.*—A shrub; leaves lanceolate to oblong-elliptic, acuminate, minutely puberulent or glabrate be-

neath; flowers small, white, in sessile cymes; fruit red.—The leaves are applied to sores to cleanse and heal them.

Psychotria undata Jacq. *Myrstiphyllum horizontale* Millsp. FMB. 2: 102. 1900, not *P. horizontalis* Sw.

Izamal, *Gaumer 974;* without locality, *Gaumer 24019;* Cozumel Island, *Millspaugh 1556a.*—A shrub 1–2 m. high, the branches pubescent; leaves elliptic-oblong or elliptic, acuminate, pubescent or glabrate; flowers small, white, in sessile terminal cymes; fruit red.

Rachicallis americana (Jacq.) Hitchc.

Collected only on coastal rocks of Cozumel Island.—An erect or procumbent shrub, densely leafy; leaves linear-oblong to obovate, 2–8 mm. long, coriaceous; flowers small, yellow, sessile in the leaf axils; corolla sericeous; fruit a small capsule.—The plant is unknown elsewhere in Mexico.

Randia Gaumeri Greenm. & Thomps. Ann. Mo. Bot. Gard. 1: 410. 1915.

Type from Izamal, *Gaumer 589.*—A spiny shrub; leaves obovate, 5–15 mm. long, broadly rounded at the apex, glabrous or nearly so; flowers axillary, sessile; calyx 4-lobate; corolla 5 mm. long.—The species is known also from Colombia and Venezuela.

Randia longiloba Hemsl. Biol. Centr. Amer. Bot. 4: 101. 1886.

X-kax (Gaumer), *Canalkax* (Gaumer), *Caax* (Schott). Frequent in thickets; endemic; type from Cozumel Island, *Gaumer* in 1885.—A spiny shrub or small tree with whitish branches; leaves ovate or elliptic, 2–4.5 cm. long, acute; flowers terminal, subsessile, clustered; corolla white, the tube 2 cm. long.—This may possibly be the plant reported as "akankax," whose root is a remedy for erysipelas.

Randia Millspaughiana Blake, Proc. Biol. Soc. Washington 34: 45. 1921.

Endemic; type from Maxcanú, *Gaumer 23260;* Mina de Oro, *Gaumer 23327.*—A stout spiny shrub; leaves ovate or elliptic, small, acute, glabrous; corolla white, the tube 12 mm. long.

Randia aculeata L. *R. mitis* L.; *R. latifolia* Lam.

Pechcitam (B. H.). Cozumel Island, *Gaumer 140;* British Honduras.—A spiny shrub 1–3 m. high; leaves 1–10 cm. long, glabrous or nearly so; flowers white, 6–8 mm. long; fruit globose, baccate, 6–13 mm. in diameter.

Randia truncata Greenm. & Thomps. Ann. Mo. Bot. Gard. 1: 411. 1915. *R. xalapensis* Millsp. FMB. 1: 321. 1896, not Mart. & Gal. *R. aculeata* Millsp. & Loes. BJE. 36: Beibl. 80: 28. 1905, not L. *R. tetramera* Loes. Verh. Bot. Ver. Brand. 65: 109. 1923.

Cabalkax (Gaumer), *Mehenkax* (Gaumer), *Kax, Pechcitam* (Seler). Frequent; endemic; type from Izamal, *Gaumer;* type of *R. tetramera* from Xkombec, *Seler 4035.*—A shrub 2–3 m. high, armed with stout spines; leaves obovate or rounded, 1–3 cm. long, obtuse or rounded at the apex, glabrous; calyx truncate; corolla tube 1–1.5 cm. long.

Rondeletia stenosiphon Hemsl. Diag. Pl. Mex. 26. 1879.

Type collected by Johnson in Yucatan or Tabasco; not collected recently.—A shrub; leaves obovate to elliptic-oval, 7–14 cm. long, acuminate, strigillose or glabrate; flowers cymose-corymbose; corolla strigose, the tube 8–11 mm. long; fruit capsular.

Sabicea flagenioides Wernham, Monogr. Sabicea 57. 1914.

Known only from the type, collected at Chichankanab, *Gaumer 1423.*—A scandent herb or shrub; leaves lanceolate, 5 cm. long, acuminate, puberulent or glabrate; flowers in small dense axillary cymes.

Spermacoce tenuior L.

Taulmil (Gaumer). A frequent weed.—An erect or spreading, branched annual 20–60 cm. high, glabrous or nearly so; leaves linear to elliptic, obtuse to acuminate; flowers minute, white, in small dense axillary clusters.—This may be the "taumil" of Cuevas (Pl. Med. 96. 1913), although that is described as having blue flowers. It is said to be a remedy for skin eruptions.

Spermacoce tetraquetra A. Rich. *Diodia teres* Millsp. FMB. 1: 321. 1896, not Walt.

Chichankanab, *Gaumer 1975;* without locality, *Gaumer 807, 965.* —An erect, simple or branched annual, copiously hispidulous or short-hirsute; leaves lanceolate to oblong-lanceolate, 2.5–6 cm. long; corolla white, about twice as long as the sepals.—In Mexico this species is known only from Yucatan. It has been reported from this region as *Spermacoce tenuior.*

Strumpfia maritima Jacq.

Sp. *Romero falso.* Collected only on Cozumel and Mugeres islands.—A dense shrub 2 m. high or less; leaves ternate, linear, 1–3 cm. long, rigid, whitish beneath, the margins revolute; flowers small,

pink, in axillary racemes; fruit a white drupe 4 mm. long.—Unknown elsewhere in Mexico.

Triodon angulatum Benth. has been reported from the region (Millsp. FMB. 1: 49. 1895), but the record is doubtful.

CAPRIFOLIACEAE. Honeysuckle Family

Some of the Old World species of *Lonicera* or honeysuckle, called "madreselva," are in cultivation as ornamental plants.

Sambucus mexicana Presl. *S. canadensis* Millsp. FMB. 1: 321. 1896, 1: 393. 1898, not L. *S. niger* Cuevas, Pl. Med. 87, Ilustr. *pl. 27, f. 3.* 1913.

Sp. *Sauco.* Cultivated commonly, but probably not native in the Peninsula.—*Elder.* A shrub or small tree; leaves pinnate or bipinnate, the leaflets ovate or lanceolate, serrate, pubescent; flowers small, creamy white, fragrant, in large flat-topped cymes; fruit a small, nearly black drupe.—The infusion of the flowers has sudorific, diuretic, and expectorant properties, and is used in treating colds, fevers, syphilis, and rheumatism. The Kekchí name of the plant is "sakatsun"; the Quiché name, "tzolotzche." Other Guatemalan names are recorded as "tzoloh," "tzolohquen," and "bahmán."

Lonicera japonica Thunb. *L. macrantha* Millsp. FMB. 1: 393. 1898, not DC.

Cultivated for ornament.—*Japanese honeysuckle.* A slender woody vine with opposite, petioled, oblong or ovate-oblong, entire leaves; flowers tubular, 2-lipped, white or yellowish, on 2-flowered axillary peduncles, sweet-scented.—Millspaugh reports *Gaumer 1105* with the note, "uncommon in the forests of Tekax," doubtless an error in locality data.

CUCURBITACEAE. Gourd Family

Cayaponia alata Cogn. in DC. Monogr. Phan. 3: 746. 1881.

Akilkax (Gaumer). Frequent; type from Hacienda Saragoza, *Schott 901.*—A large coarse herbaceous vine with tendrils; leaves deeply 5–7-lobed, the lobes narrow, scabrous beneath; staminate flowers solitary, 2 cm. long.

Cayaponia racemosa (Swartz) Cogn.

Occasional.—A large herbaceous vine; leaves lobed or the upper entire, scabrous; flowers in racemes or panicles, about 1 cm. broad; fruit oblong, red, 1–2 cm. long.

Citrullus vulgaris Schrad.

Sp. *Sandía.* Cultivated; native of Africa.—*Watermelon.*

Corallocarpus emetocatharticus (Grosourdy) Cogn.

Cizcan (Gaumer). Occasional.—A large vine with fleshy stems; leaves ovate or rounded, entire or lobed, tomentose beneath; flowers pale yellow, small, in dense clusters, sessile; fruit fleshy, ovoid, 1 cm. long.

Corallocarpus Millspaughii Cogn. FMB. 1: 322. *pl. 20.* 1896.

Xtucizcan (Gaumer). Frequent; type from Chichen Itzá, *Millspaugh 215;* also in Oaxaca.—A large coarse vine; leaves broadly triangular-ovate, entire or angulate, glabrous, petiolate; flowers small, in short racemes; fruit oval, 4 cm. long, at first whitish, becoming yellow and finally crimson.—The plant has a large tuberous root, weighing 6 pounds or more, which has a bitter flavor and emetic-cathartic properties.

Cucumis Anguria L.

Habaplat (Gaumer), *Sandía chom* (Gaumer). Sp. *Sandía de zopilote.* Frequent.—A prostrate vine, hispid; leaves deeply 3–5-lobed, scabrous; flowers clustered or solitary, yellow; corolla 1 cm. broad; fruit ellipsoid, fleshy, prickly, yellow, 4–7 cm. long.

Cucumis Melo L.

Sp. *Melón.* Cultivated commonly; native of the Old World.—*Muskmelon.* An infusion of the pulverized seeds is given as a remedy for venereal diseases. A decoction of the root is administered as a vomitive.

Cucumis sativus L.

Sp. *Pepino.* Cultivated commonly; native of Asia.—*Cucumber.*

Cucurbita ficifolia Bouché.

Sp. *Cidracayote, Chilacayote* (names of Nahuatl origin). Cultivated occasionally; native of Asia.—A perennial vine with broad, shallowly lobed leaves; fruit large, somewhat resembling a watermelon; seeds black.—The young fruit is cooked and eaten. The ripe fruit is used for preparing dulces.

Cucurbita moschata Duch.

Kum (written also "kuum" and "cum"). Sp. *Calabaza.* Cultivated commonly; native of America, but probably unknown in a truly wild state.—*Squash.* There is some doubt as to the proper

specific name of the "calabazas" grown in Central America, but they seem to be squashes rather than pumpkins, and are therefore referable to *Cucurbita moschata*, rather than to *C. Pepo* L., if there is any essential difference between the two. The name "ca" is given in Yucatan to a kind of squash, described as white and striped. The Motul Dictionary defines "tsol" as a kind of green flat "calabaza." Pérez defines "chu" as "calabazo." Squash seeds are called "zicil." Gaumer lists also the "calabaza masilla" and "calabaza bonetera." Squash seeds are ground and taken in water or milk to expel intestinal parasites.

In Tabasco the names "compate" and "cumpate" are applied to a kind of "calabaza" with thin smooth skin, which is much esteemed for making dulces.

Cyclanthera ribiflora (Schlecht.) Cogn.

Mérida and Izamal.—A slender vine; leaves usually 3-lobed, scaberulous; flowers small, greenish, racemose; fruit fleshy, curved, 2–2.5 cm. long, spiny.

Lagenaria siceraria (Molina) Standl., comb. nov. *Cucurbita siceraria* Molina, Sagg. Chil. 133. 1782. *L. vulgaris* Ser.

Cultivated and probably escaped; native of Africa.—*Gourd.* A large vine with showy white flowers.—The dry hard fruits, globose and with a long narrow "handle," are used as dippers. This is apparently the plant reported by Pérez as "tuch." He reports also the name "lec," "a kind of 'calabaza' which serves the Indians for 'vasijas.'" In Tabasco the name "leque" is given to the fruit, especially when it is made into cups and similar containers. In the same state the fruit is called "bux."

Luffa cylindrica (L.) Roem. *L. aegyptiaca* Mill.; *L. fricatoria* Dondé, Emulación 3: Apend. 20. 1878.

Sp. *Estropajo.* Planted and escaped; native of the Old World.—*Sponge gourd.* A large vine with showy yellow flowers; leaves deeply cordate at the base, shallowly or deeply lobed, the lobes acute.—The spongelike interior of the fruit is used like animal sponges.

Calvino reports *Luffa acutangula* (L.) Roxb. as introduced to Mérida by the Chinese gardeners and called "papangaya." In this species the fruit is sharply 10-ribbed; in *L. cylindrica* it is smooth. The young tender fruits of both species are sometimes cooked and eaten.

Maximowiczia tripartita (Naud.) Cogn. *M. Lindheimeri* Millsp. & Loes. BJE. 36: Beibl. 80: 29. 1905, not Cogn.

Akilkan (Gaumer). Occasional.—A glabrous fleshy vine; leaves small, 3-lobed or 3-parted, the lobes coarsely dentate; flowers small, axillary; fruit oval, red, smooth, 2.5 cm. long.

Melothria guadalupensis (Spreng.) Cogn. *M. fluminensis* Gardn.

Sp. *Meloncito.* Common.—A small slender vine; leaves broadly ovate-cordate, 5-angled or shallowly lobed, usually scabrous; flowers small, racemose, yellow; fruit oval, 1–1.5 cm. long, fleshy.

Melothria pendula L.

Xtulub (Gaumer). Sp. *Sandía silvestre.* Occasional.—A small vine; leaves small, 3–5-lobed, scabrous; flowers small, racemose; fruit ellipsoid, about 1 cm. long.—This is probably the plant for which the names "kumixtulub" (Motul Dictionary) and "kumxtulub" are reported. It is a local remedy for gonorrhea and for swellings or inflammation.

Momordica Charantia L.

Yacunahax (Gaumer). Sp. *Cundeamor, Bálsamo, Catagera.* Common.—A slender herbaceous vine; leaves reniform, 5–7-lobed, pubescent or glabrate; flowers small, yellow; fruit fleshy, yellow, ovoid, 2–12 cm. long, tuberculate, the seeds surrounded by red pulp.—The fruit is sometimes eaten. The leaves are employed in native medicine as an aphrodisiac. The fruit is applied as a poultice to cure itch, sores, burns, etc., and it is reputed to have vermifuge and purgative properties.

Pittiera grandiflora Cogn.; Donn. Smith, Enum. Pl. Guat. 3: 35. 1893. *Cayaponia grandiflora* Cogn. in DC. Monogr. Phan. 3: 779. 1881.

Xtabentun (Schott). Type from Ticul, *Schott 680;* collected also at Izamal.—A large herbaceous vine; leaves broad, cordate at the base, entire or lobed, scabrous; flowers solitary, axillary.

Pittiera longipedunculata Cogn.

Pomponzit (Gaumer). Occasional.—A large vine; leaves broadly cordate, angled or shallowly lobed, tomentose beneath; flowers 4–5 cm. long; fruit oval, 4–5 cm. long.

Sechium edule (Jacq.) Sw.

Sp. *Chayote* (of Nahuatl derivation). Cultivated occasionally.—A large perennial herbaceous vine; leaves rounded-ovate, angled or

lobed, rough; flowers small, white, the staminate in racemes.—This plant is notable from the fact that almost all its parts are edible. The obovoid, smooth or spiny, 1-seeded fruits are cooked and eaten; the young shoots and flowers are used as a pot herb; the large tuberous roots, which may be removed without injuring the plants, are boiled and eaten as a vegetable, and are also made into delicious dulces. The roots are called in Mexico "chinchayote," "chayotextle" and "camochayote." Palma gives the Maya name as "kuum," and states that the spiny-fruited form is called "kiix-pach-kuum." The Kekchí name is "chima," and the Pokonchí name is reported as "ch'uma."

Sicana odorifera (Vell.) Naud.

Sp. *Melocotón, Calabaza melona.* Sometimes planted; native of South America.—A large vine; leaves rounded, lobed, smooth; flowers large, yellow, solitary; fruit reddish yellow, oblong, 30–40 cm. long, fragrant.—The ripe fruit is employed in making dulces.

Sicydium tamnifolium (HBK.) Cogn. *Triceratia bryonioides* A. Rich.

Chacmots (Petén). Common in thickets.—A slender herbaceous vine; leaves ovate-cordate, entire, densely pubescent; flowers very small, panicled; fruit black, fleshy, 5–6 mm. long, 1-seeded.

LOBELIACEAE. Lobelia Family

Isotoma longiflora (L.) Presl.

Lukzahtahan (Gaumer). Sp. *Lágrimas de San Diego.* Frequent.—A perennial pubescent herb, usually 60 cm. high or less, with milky sap; leaves alternate, lanceolate or oblong, coarsely sinuate-dentate; flowers axillary, white, the very slender corolla tube 8–11 cm. long; fruit a large capsule.—The plant is applied to wounds as a cauterizing and healing agent. It is employed also in the treatment of venereal diseases, asthma, bronchitis, and rheumatism, and even of epilepsy and hydrophobia.

Lobelia Berlandieri A. DC.

Occasional.—A small slender herb; leaves mostly basal, lanceolate to spatulate, sinuate-dentate or entire; flowers small, blue, in terminal racemes.

GOODENIACEAE. Goodenia Family

Scaevola Plumierii (L.) Vahl. *Scaevola Lobelia* Murr.

Common on seashores.—A coarse succulent perennial, often shrubby, glabrous; leaves alternate, obovate, entire, very thick; flowers white or bluish, in axillary cymes; corolla 2.5 cm. long; fruit a black berry 1 cm. long.

COMPOSITAE. Sunflower Family

Achillea Millefolium L.

Sp. *Alcanfor, Mil en rama.* Collected only at Mérida; introduced, probably from the United States.—*Yarrow.* A perennial pubescent herb; leaves alternate, finely pinnatifid-dissected and plumelike; heads small, white, in flat-topped corymbs.

Ageratum Gaumeri Robinson, Proc. Amer. Acad. 47: 191. 1911. *A. corymbosum* Millsp. FMB. 1: 51. 1895, 1: 323. 1896, not Zucc. *A. conyzoides* Millsp. FMB. 1: 323. 1896, 1: 394. 1898, not L. *A. intermedium* Millsp. & Chase, FMB. 3: 90. 1904, not Hemsl.

Taulum (Gaumer), *Zacmizib* (Gaumer), *Tsitsilche.* Sp. *Mota, Mota morada, Sereno, Flor de San Juan.* Frequent; endemic; type from Izamal, *Gaumer 395.*—An annual, sparsely pilose; leaves opposite, ovate or deltoid-ovate, acute, crenate, long-petioled; heads 5 mm. high, purple, few, laxly corymbose; achenes 5-angled, the pappus of 5 aristate scales.—The name "bakelus" is reported for the plant by Valdez. The leaves are bound upon the temples to check nosebleed.

Ageratum littorale Gray, var. **hondurense** Robinson. *Alomia ageratoides* Millsp. FMB. 1: 51. 1895, 1: 394. 1898, 2: 106. 1900; Millsp. & Chase, FMB. 3: 90. 1904, not HBK. *A. littorale* f. *setigerum* Robinson, Proc. Amer. Acad. 49: 468. 1913.

Hauayche (Gaumer). Frequent on the islands off the east coast, also on the mainland; the typical form of the species occurs in Florida. —An erect or ascending annual, sparsely pubescent; leaves ovate, acute, crenate; flowers purple, the heads 6–7 mm. high, in small dense corymbs; achene 5-angled, the pappus none or of 5 lanceolate scales.—The type of f. *setigerum* was collected on Mugeres Island by Gaumer.

Ageratum maritimum HBK. var. **intermedium** (Hemsl.) Robinson. *A. intermedium* Hemsl.; *A. maritimum* f. *calvum* Robinson, Proc. Amer. Acad. 49: 467. 1913.

Tsitsilche (Gaumer). Occasional; typical form of the species occurring in Cuba.—An erect or decumbent annual, sparsely pilose; leaves ovate-oblong or deltoid, crenate, acute; flowers purple, the heads 7 mm. long, in lax corymbs; pappus of 5 ovate scales, or sometimes wanting.

Ambrosia hispida Pursh.

Sp. *Margarita del mar.* Frequent on seashores.—A perennial herb, prostrate, hispid; leaves opposite, 2 or 3 times pinnatifid, strong-scented; flowers small, greenish yellow, the 2 sexes in separate involucres; fruit ovoid, beaked, tuberculate.—The plant has been employed locally as a remedy for fevers.

Artemisia vulgaris L. *A. mexicana* Millsp. FMB. 1: 323. 1896; Millsp. & Chase, FMB. 3: 145. 1904, not Willd.

Zizim (Gaumer); reported as "tzitzim" and "sisin." Sp. *Ajenjo.* Planted for medicinal use or as an ornamental plant; native of Europe.—A perennial herb, densely white-tomentose or glabrate; leaves alternate, deeply pinnate-lobed; heads small, greenish, panicled, without rays.—The plant is employed in the region as a bitter tonic, emmenagogue, and anthelmintic. It is administered for pains in the stomach and for malaria, and used in a lotion to relieve rheumatism. The single specimen at hand from Yucatan is imperfect, and there is doubt concerning its determination, but it is not *A. mexicana.*

Aster laevis L. *A. novi-belgii* Millsp. FMB. 1: 323. 1896, not L.

Sp. *Ramillete.* Planted for ornament at Izamal; native of the United States.—A glabrous perennial herb; leaves oblong or lanceolate, entire; heads radiate, the rays violet.

Baccharis heterophylla HBK. *B. halimifolia* Millsp. & Chase, FMB. 3: 100. 1904, not L.

Sp. *Hierba del pasmo.* Frequent on sea and lake shores.—A glutinous shrub 1–2.5 m. high, densely leafy, nearly glabrous; leaves alternate, oblanceolate, 2–5.5 cm. long, obtuse, mostly entire; flowers whitish, the heads 3–4 mm. high, in small dense corymbs; pappus of slender bristles.

Baccharis trinervis (Lam.) Pers.

Holnuxib (Gaumer). Occasional.—A shrub 1–2 m. high, the branches long, recurved or clambering, angled; leaves lanceolate to elliptic, 3-nerved, acuminate, glabrous or nearly so; flowers whitish, the heads 4 mm. long.

Baltimora recta L.

Zalackat (Gaumer). A frequent weed.—An erect annual 1 m. high or less, hirsute; leaves opposite, petiolate, ovate, acuminate, serrate; flowers yellow, the heads 5–6 mm. high, radiate, panicled; achenes cuneate, black, 3-angled; pappus a cuplike crown.

Bidens cynapiifolia HBK. *B. bipinnata* Millsp. & Chase, FMB. 3: 131. 1904, in part, not L.

Chacxul (Gaumer). Izamal, *Gaumer* in 1888; *Gaumer 2498, 2504* in part.—An erect annual; leaves opposite, 1–3 times pinnatifid, the segments ovate or oblong; heads long-stalked, yellow, the involucre 2-seriate; achenes linear, the pappus of 4–6 downwardly barbed awns.

Bidens pilosa L. var. **leucantha** (L.) Hoffm. *B. leucantha* Willd.; *B. pilosa* Millsp. FMB. 1: 54. 1895, not L. *B. alausensis* Millsp. FMB. 1: 54. 1895, not HBK.

Kanmul (Gaumer). Sp. *Mulito, Té de milpa.* A common weed. —An erect annual, glabrous or pubescent; leaves with 3 or 5 ovate or lanceolate, serrate segments; heads with short white rays; achenes columnar-fusiform, the pappus of 2–4 downwardly barbed awns.—The Kekchí name of this species is "xubai."

Bidens refracta Brandeg. *B. bipinnata* Millsp. & Chase, FMB. 3: 131. 1904, in part, not L.

Chacxul (Gaumer). Izamal, *Gaumer 2499, 2504* in part.—Similar to *B. pilosa* var. *leucantha*, but the heads not radiate; achenes pilose.

Bidens reptans (L.) Don. *B. tereticaulis* Millsp. & Chase, FMB. 3: 132. 1904, in part, not DC.

San Anselmo, *Gaumer 2083.*—A glabrous vine, herbaceous or slightly woody; leaves pinnately parted into 3–5 lanceolate or oblong-ovate, serrate segments; heads 9 mm. high, panicled, with showy yellow rays.

Bidens squarrosa HBK. *B. tereticaulis* DC.

Frequent.—A large vine, somewhat woody; leaves pinnately parted into 3–5 ovate or lanceolate, serrate segments; heads panicled, with showy yellow rays; achenes linear, the pappus of 2 spreading or recurved awns.

Bidens Urbanii Greenm.

Apazote, Campeche, *Goldman 468;* also in Porto Rico.—A slender vine, nearly glabrous; leaves 2 or 3 times parted into small segments;

heads cymose-paniculate, 8–10 mm. high, with yellow rays; achenes linear, the pappus of 2–4 downwardly barbed awns.

Borrichia arborescens (L.) DC. *B. argentea* DC.

Sp. *Verdolaga del mar.* Cozumel, Mugeres, and Holbox islands, on seashores.— A small shrub, canescent-pubescent or glabrate; leaves opposite, fleshy, oblanceolate; heads solitary, 12–15 mm. high, yellow, radiate; phyllaries oblong, appressed; pales acute, thin; achenes oblong, angled, the pappus a 4-toothed crown.

Borrichia frutescens (L.) DC. *Borrichia argentea* Millsp. & Chase, FMB. 3: 116. 1904; Millsp. & Loes. BJE. 36: Beibl. 80: 29. 1905, not DC.

Sp. *Verdolaga del mar.* Common on seashores.—A low shrub, densely canescent-strigillose; heads 8–9 mm. high, the phyllaries ovate, somewhat spreading; pales indurate, spine-tipped.

Brickellia diffusa (Vahl) Gray. *Coleosanthus diffusus* Kuntze.

Common.—An erect branched annual 1 m. high or less, puberulent or glabrate; leaves opposite, broadly rhombic-ovate, acute, dentate; flowers greenish white, the heads 7–12-flowered, 7 mm. high, in large panicles; achenes pubescent, 10-ribbed, the pappus of capillary bristles.

Calea urticifolia (Mill.) DC. *C. axillaris* var. *urticifolia* Robins. & Greenm.

Xicin (Gaumer). Sp. *Hierba de la paloma.* Frequent.—A shrub 1–3 m. high; leaves opposite, ovate, 5–12 cm. long, serrate, rough; heads yellow, 1 cm. high, with short rays, in umbelliform panicles; achenes pubescent, the pappus of about 20 linear scales.—The flowers are said to yield a good grade of honey.

The "xicim" reported by Cuevas (Pl. Med. 109. 1913) is said to have milky sap, and is, therefore, probably a member of another family.

Calea zacatechichi Schlecht.

Tzicin (Gaumer); reported also as "xicin." Occasional.—A shrub, puberulous or pubescent; leaves ovate, coarsely dentate, gland-dotted; heads 1 cm. high, in dense panicles; rays none; pappus of 12–15 oblong scales.

Chaptalia dentata (L.) Cass. *C. albicans* Northrop.

Sp. *Motitas.* Cultivated at Izamal and Yot Tsonot.—A perennial scapose herb; leaves in a basal rosette, oblanceolate, entire or nearly

so, white-tomentose beneath; heads 1.5 cm. high, purplish; achenes slender-beaked, the pappus of tawny bristles.

Cirsium mexicanum DC. *Carduus mexicanus* Moric.

Omil. Sp. *Cardo.* Occasional.—*Thistle.* A large biennial herb, white-tomentose; leaves alternate, decurrent, pinnate-lobed, with spiny margins; heads purplish, 4 cm. high, without rays; pappus of plumose bristles.

Conyza lyrata HBK.

Sp. *Hierba del histérico.* A frequent weed.—A coarse viscid-pubescent herb 1 m. high or less with very unpleasant odor; leaves alternate, sessile, obovate, sinuate-lyrate, dentate; flowers greenish white or yellowish, the heads 6–7 mm. high, with inconspicuous rays; achenes villous, the pappus of slender tawny bristles.

Cosmos caudatus HBK.

Chactsul (Gaumer; reported as "chacxul"). Sp. *Estrella del mar.* Occasional.—A tall branched annual, nearly glabrous; leaves twice pinnatifid, opposite; heads long-stalked, 1 cm. high, the involucre biseriate; rays rose-purple; achenes fusiform, the pappus of 2 slender deflexed awns.

Dahlia variabilis Desf.

Sp. *Dalia.* Grown for ornament; native of the mountains of Mexico.—*Dahlia.* The Kekchí name of the plant is "tsoloh."

Dyssodia cancellata (Cass.) Gray. *Chrysopsis* sp. Millsp. FMB. 1: 52. 1895.

Sp. *Cardosanto del monte.* Frequent.—An erect glabrous annual; leaves alternate, sessile, pinnate-lobed, gland-dotted; heads yellow, long-stalked, 1.5 cm. high, with short rays; achenes linear-clavate, the pappus of short scales and of numerous bristles.

Eclipta alba (L.) Hassk. *E. erecta* L.

A common weed.—An erect or procumbent, strigose annual; leaves opposite, oblong, sinuate-dentate; heads greenish white, axillary, 5 mm. high, with minute rays; phyllaries broadly ovate, acuminate; achenes cuneate, corky-tuberculate, the pappus of 2 short teeth.

Egletes viscosa (L.) Less. *Erechtites* sp. Millsp. FMB. 1: 323. 1896. *Lactuca* sp. Millsp. & Chase, FMB. 3: 151. 1904.

Sp. *Llantén silvestre.* Mérida, *Valdez.*—A viscid-pubescent much-branched herb; leaves alternate, deeply lobed or bipinnatifid, repand-

dentate; heads small, yellowish.—Locally the plant is reputed to have refrigerant properties.

Elvira biflora (L.) DC. *E. Martyni* Cass.

Bulumekxiu (Gaumer; *bolonekxiu?*). A common weed.—An erect strigose annual, usually 50 cm. high or less; leaves opposite, petiolate, lance-ovate, acuminate, serrate, 3-nerved; heads clustered, 2-flowered, the phyllaries rounded-cordate; ray flowers none; achene obovate, flat, without pappus.

Erechtites hieracifolia (L.) Raf.

Buubxiu (Gaumer). Frequent.—A coarse erect annual about 1 m. high, sparsely villous or glabrate; leaves alternate, pinnate-lobed or incised-dentate; heads 1.5 cm. high, yellowish white, without rays; pappus of soft white bristles.

Erigeron pusillus Nutt. *E. canadensis* Millsp. FMB. 1: 52. 1895, 1: 323. 1896, 1: 395. 1898, not L. *Leptilon canadense* Millsp. & Chase, FMB. 3: 99. 1904, not Britt. & Brown.

Tzitzilxiu (Gaumer). A common weed.—An erect pubescent annual; leaves alternate, linear, usually entire; flowers greenish white, the heads 3–4 mm. high, with minute rays; achenes pubescent, the pappus of tawny bristles.—The plant is reputed to have astringent, diuretic, and tonic properties, and is employed in treating dysentery, uterine hemorrhages, diabetes, and bronchial affections.

Eupatorium albicaule Schultz Bip. *E. drepanophyllum* Klatt, Ann. Naturhist. Hofmus. Wien 9: 356. 1894.

Zactokaban (Gaumer). Common.—A shrub 3–5 m. high (reported as a tree of 9 m.) with brittle whitish branches; leaves opposite, oblong or ovate, 5–12 cm. long, serrate or nearly entire, glabrous; flowers white, the heads 6–7 mm. high, in dense rounded corymbs; pappus (as in other species) of slender bristles.—The type of *E. drepanophyllum* is *Gaumer 122* from Cozumel Island.

Eupatorium campechiense Robinson, Proc. Amer. Acad. 43: 30. 1907.

Known only from the type, from Apazote, Campeche, *Goldman 504*.—A shrub, nearly glabrous; leaves lanceolate, 8–10 cm. long, serrate; heads about 5-flowered, in flattish corymbs.

Eupatorium daleoides (DC.) Hemsl. *E. hebebotryum* Millsp. FMB. 2: 105. 1900, not Hemsl.

Xtokabal. Cozumel Island, *Millspaugh 1510.*—A large shrub or small tree, nearly glabrous; leaves elliptic-oblong, 10–20 cm. long, acute, serrate; flowers white, the heads 6 mm. high, 4–5-flowered, in rounded panicles.—A decoction of the bark, leaves, and flowers is a local remedy for gonorrhea.

The related *E. hebebotryum* (DC.) Hemsl. is known in British Honduras as "soscha," "xoltexnuc," and "old-woman's walking-stick."

Eupatorium hemipteropodum Robinson, Proc. Amer. Acad. 42: 39. 1906. *E. populifolium* Millsp. FMB. 1: 324. 1896, not HBK. *E. quadrangulare* Millsp. FMB. 1: 324. 1896, not DC. *E. aromatisans* Millsp. & Chase, FMB. 3: 92. 1904; Cuevas, Pl. Med. 36, Ilustr. *pl. 30, f. 2.* 1913, not DC.

Sp. (?) *Chioplé.* Frequent; sometimes cultivated; endemic; type from Izamal, *Gaumer 552.*—A shrub or herb 3 m. high, glabrous or nearly so; leaves ovate, serrate; flowers white, the heads 7 mm. high, about 10-flowered, in ovoid thyrses.—The aromatic leaves are used for flavoring tobacco. An alcoholic tincture of the plant is applied externally to relieve rheumatic pains, and taken internally for dyspepsia and other digestive disorders.

Eupatorium macrophyllum L.

Arepaxiu (Petén). Petén.—A coarse herb 1–2 m. high; leaves broadly ovate, acute, crenate, finely pubescent; flowers greenish white, the large heads in rounded corymbs.

Eupatorium microstemon Cass. *E. paniculatum* Schrad.; *E. guadalupense* DC.

Xultoxiu (Gaumer). Frequent.—A slender annual, nearly glabrous, 1 m. high or less; leaves rhombic-ovate, acute, crenate; flowers purple, the heads 5 mm. high, about 15-flowered.

Eupatorium odoratum L. *E. conyzoides* Mill.; *E. ivaefolium* Millsp. FMB. 2: 105. 1900, not L.

Tokaban (Gaumer), *Tokabal* (Gaumer). Common.—A shrub, erect or with long recurved branches; leaves triangular-ovate or rhombic-ovate, acuminate, serrate or crenate, glabrous to tomentose; flowers pale blue or white, the heads cylindric, 1 cm. high, in flattish corymbs.

Eupatorium pycnocephalum Less.

Frequent.—An erect herb 1 m. high or less, pubescent or glabrate; leaves deltoid-ovate, acuminate, crenate-serrate; flowers purple, the

heads 4–6 mm. high, about 25-flowered, in small dense corymbs.—The Kekchí name of the plant is "lokab."

Flaveria linearis Lag. *F. longifolia* Millsp. FMB. 1: 54. 1895, not Gray.

Kanlolxiu (Gaumer). Common along the coast.—An erect herb about 50 cm. high, forming dense clumps, glabrous; leaves opposite, sessile, linear-lanceolate, fleshy, entire; heads yellow, 6 mm. high, 5–6-flowered, in dense corymbs, with a single ray flower; achenes oblong, glabrous, without pappus.

Flaveria trinervia (Spreng.) Mohr. *F. repanda* Lag.; *Broteroa trinervata* DC.; *F. trinervata* Baill.

Frequent.—A glabrous erect annual 1 m. high or less; leaves oblong or oblanceolate, 3-nerved, serrate; heads 4–5 mm. high, yellow, 1-flowered, in dense clusters.

Goldmanella sarmentosa Greenm. Bot. Gaz. 45: 198. 1908. *Goldmania sarmentosa* Greenm. FMB. 2: 271. 1907. *Caleopsis sarmentosa* Fedde, Repert. Sp. Nov. 8: 326. 1910.

Type collected at Cansayal, Campeche, *Goldman 448;* also in British Honduras.—A prostrate or ascending perennial herb, nearly glabrous; leaves alternate, ovate, entire; heads 6–8 mm. high, in cymes, the rays white or pale yellow; achenes oblong, glabrous, the pappus of 2–4 short awns.—The genus consists of a single species.

Grindelia nana Nutt.

Mérida, *Millspaugh 33;* introduced from the United States.—An erect annual; leaves alternate, linear-lanceolate or spatulate, serrate or entire; heads yellow, radiate, 1.5 cm. high, the phyllaries very viscid.

Helenium quadridentatum Labill. *H. autumnale* Cuevas, Pl. Med. 64, Ilustr. *pl. 1, f. 2.* 1913, not L.

Hetzimxiu (Gaumer). Sp. *Manzanilla.* Frequent.—An erect annual, nearly glabrous, with winged stems; leaves alternate, long-decurrent, lanceolate and entire, or the lower pinnatifid, punctate; heads 1 cm. high, yellow, with showy 3-lobed rays; achenes villous, the pappus of 4–6 oval erose-dentate scales.—A decoction of the plant is administered for fevers and colic pains, and as a diuretic. The powdered leaves are used as snuff to relieve catarrh, causing sneezing if sniffed into the nose.

Helenium tenuifolium Nutt.

Collected only at Umán; probably introduced from the United States.—An erect, nearly glabrous annual; leaves linear; heads 8–10 mm. high, yellow; pappus of 6 or 7 long-aristate scales.

Helianthus annuus L.

Sp. *Girasol, Mirasol.* Collected only at Umán, as an escape from cultivation; sometimes planted for ornament; native of the western United States.—*Sunflower.* A large hispid annual; leaves mostly alternate, broadly ovate; heads large, with showy yellow rays.

Isocarpha oppositifolia (L.) R. Br. *Ageratum paleaceum* Millsp. FMB. 2: 106. 1900, not Hemsl.

Chahancan (Gaumer, Seler), *Kutzaban* (Gaumer). Common.—An erect branched pubescent herb; leaves opposite, lanceolate to linear, entire or nearly so; heads whitish, long-stalked, 8–10 mm. high, without rays; achenes cuneate, glabrous, without pappus.

Lactuca intybacea Jacq. *Stephanomeria runcinata* Millsp. FMB. 1: 325. 1896, not Nutt.

A frequent weed in cultivated ground; perhaps not native.—An erect glabrous herb with milky sap; leaves alternate, chiefly basal, runcinate-pinnatifid, clasping; heads 1.5 cm. high, yellow, panicled; achenes fusiform, tuberculate, short-beaked, the pappus of soft bristles.

Lactuca sativa L.

Sp. *Lechuga.* Cultivated for food; native of the Old World.—*Lettuce.*

Melampodium divaricatum (L. Rich.) DC. *M. paludosum* HBK. *Eleutheranthera divaricata* Millsp. FMB. 1: 53. 1895.

Xoy (Gaumer), *Copalxiu* (Gaumer; a combination of Nahuatl and Maya). A common weed.—An erect branched annual 1 m. high or less, pubescent; leaves opposite, lanceolate or ovate, short-petiolate, sinuate-dentate; heads yellow, 8–9 mm. high, long-stalked, radiate; outer phyllaries 5, rounded; achenes black, obovoid, 3-angled, glabrous, without pappus.—The name "xoy" signifies stye, probably in allusion to the application of the sap to boils upon the eyelids. The name "xkantumbub" has been reported for this plant, probably in error.

Melampodium gracile Less. *M. hispidum* Millsp. FMB. 1: 324. 1896, not HBK.

Occasional.—An erect hispid annual; leaves sessile and clasping, oblong, sinuate-dentate; heads yellow, 8 mm. high, long-stalked, the rays very short; outer phyllaries 3, ovate; achenes black, obovoid, glabrous.

Melanthera nivea (L.) Small. *Amellus niveus* Kuntze; *A. asper* Millsp. FMB. 1: 52. 1895, 1: 323. 1896, perhaps not Kuntze. *M. hastata* Millsp. FMB. 1: 395. 1898, perhaps not Michx.

Toplanxiu (Gaumer). Common.—A coarse erect scabrous herb, often a meter high or taller; leaves opposite, usually hastate-lobed; heads white, 7–10 mm. high, without rays, long-stalked; anthers black; achenes cuneate, pubescent, the pappus of 2–4 deciduous awns.—Some of the Yucatan specimens have been determined as *M. deltoidea* Rich., a name which is perhaps synonymous with *M. nivea.*

Mikania cordifolia (L. f.) Willd. *Willughbaeya cordifolia* Kuntze.

Occasional.—An herbaceous vine; leaves opposite, cordate, dentate, densely pubescent; flowers dirty white, the heads 1 cm. long, in dense corymbs; phyllaries 4; achenes 5-angled, the pappus of rusty bristles.

Mikania micrantha HBK. *M. scandens* Millsp. FMB. 1: 324. 1896, not Willd. *Willughbaeya scandens* Millsp. & Chase, FMB. 3: 96. 1904, not Kuntze.

Uahkoxiu (Gaumer). Occasional.—An herbaceous vine, nearly glabrous; leaves hastate-cordate, repand-dentate; flowers white, the heads 5–7 mm. high.—The vernacular name is evidently a variant of "guaco," the name applied generally in Central America to the species of *Mikania,* which are considered an efficacious remedy for snake bites. In Yucatan the plant is employed as a remedy for wounds, bruises, and tumors, colic and other affections of the alimentary canal, and for syphilitic sores.

M. Houstoniana (L.) Robinson has been reported from the region (*Willughbaeya Houstonis* Millsp. FMB. 1: 51. 1895), on the basis of a Johnson specimen, but the record lacks confirmation.

Milleria quinqueflora L.

Xentoloc (Gaumer); reported as "xiutoloc." A frequent weed.—A branched erect annual, glandular-pubescent; leaves opposite, rounded-ovate, nearly entire, rough above, soft-pubescent beneath;

flowers yellow, the heads 5–6 mm. high, composed of 1 ray flower and 4 disk flowers; achene obovoid, black, striate, without pappus.

Montanoa Schottii Robins. & Greenm. Proc. Amer. Acad. 34: 518. 1899. *M. hibiscifolia* Millsp. FMB. 1: 324. 1896, not Schultz Bip.

Homahak (Gaumer; "trumpet vine"). Sp. *Cerbatana*. Frequent; endemic; type collected between Mérida and Sisal, *Schott 913*.—A scandent shrub, sometimes 15 m. long, with a stem 5 cm. thick; leaves opposite, petiolate, ovate, often 3-lobed, serrate, tomentulose beneath; heads large, in cymes, with long white rays; achenes cuneate, glabrous, without pappus; pales papery and enlarged in fruit.

Neurolaena lobata (L.) R. Br.

Yaxta (Petén). Campeche and Petén.—A coarse erect herb 1–2 m. high, rough-pubescent; leaves alternate, lobed; heads 6–8 mm. high, greenish yellow, without rays, corymbose; achenes pubescent, the pappus of tawny bristles.

Lagascea mollis Cav. *Nocca mollis* Jacq.; *Tithonia tubaeformis* Millsp. FMB. 1: 325. 1896, not Cass.

Acuate (Gaumer; an Aztec name). Frequent.—A branched pubescent annual, usually 50 cm. high or less; leaves opposite, ovate, crenate-dentate; flowers white, the heads 7 mm. high, in dense clusters subtended by 4–6 ovate leaflike bracts; achenes pubescent, the pappus a crown of white hairs.

Notoptera Gaumeri Greenm. FMB. 2: 269. 1907. *Salmea Gaumeri* Greenm. in Millsp. & Chase, FMB. 3: 124. *pl.* 1904.

Pucak (Gaumer). Frequent; endemic; type from Izamal, *Gaumer 977*.—A large shrub; leaves opposite, oval-ovate, 5–7 cm. long, obtuse or rounded at the apex, tomentose beneath, entire; heads 7 mm. high, yellow, without rays, in terminal panicles; achenes cuneate, compressed, glabrous, the pappus of 2 unequal awns.

Notoptera leptocephala Blake, Proc. Biol. Soc. Washington 34: 46. 1921.

Pucak (Schott). Endemic; Kancabtsonot, *Gaumer 23620;* Chichankanab, *Gaumer 23709;* without locality, *Gaumer 24416, 24436*. Type from Xnocac, *Gaumer 23473*.—A shrub 2–3 m. high; leaves ovate, denticulate, densely pubescent beneath, rough above; heads subcylindric, 7.5–10 mm. high; achene wings ciliolate.

Notoptera scabridula Blake.

Campeche.—A scandent shrub; leaves ovate or oblong-ovate, 5–12 cm. long, acuminate, rough above, densely pubescent beneath; heads 4–7 mm. high; achene wings not ciliolate.

Oliganthes oxylepis Benth. in Benth. & Hook. Gen. Pl. 2: 233. 1873.

Known only from the type, collected in Yucatan or Tabasco by Johnson.—Leaves rhombic, 8–11 cm. long, acute, crenate-dentate, tomentose beneath; heads 8–9-flowered, sessile in small clusters at the tips of the branches, 1 cm. high; pappus a low entire crown.

Otopappus scaber Blake, CNH. 22: 636. 1924. *O. verbesinoides* Millsp. FMB. 2: 270. 1907, not Benth.

Known only from the type, collected at Apazote, Campeche, *Goldman 482.*—A scandent shrub; leaves opposite, oblong-ovate, 5–9 cm. long, serrulate, rough; heads yellow, radiate, 3 cm. wide; pappus of 2 awns and a lacerate crown.

Parthenium Hysterophorus L. *Artemiza vulgaris* Cuevas, Pl. Med. 14, Ilustr. *pl. 10, f. 3.* 1913.

Hauay (Gaumer). Sp. *Altamisa, Artamisa.* A common weed.—An erect grayish-pubescent annual; leaves alternate, bipinnatifid; heads white, 3–4 mm. high, with minute rays, in cymose panicles; achenes black, obovate, 3-angled, the pappus of 2 broad membranous scales.—An infusion of the leaves and flowers is used as an emmenagogue.

This is probably the plant listed in the Motul Dictionary as "hauaicne." The decoction of the leaves was employed as a remedy for itch, ringworm, and lepra.

Parthenium Schottii Greenm. in Millsp. & Chase, FMB. 3: 109. *pl.* 1904. *P. fruticosum* Millsp. FMB. 2: 106. 1900; Millsp. & Chase, FMB. 3: 110. 1904, not Less.

Chalha (Gaumer), *Chalcha* (Schott), *Sactoy* (Gaumer). Sp. *Santa María.* Frequent in moist soil; endemic; type from Labcah, *Schott 264.*—A shrub; leaves triangular-ovate, repand, 5–9 cm. long, acute or obtuse, pubescent beneath; heads white, 4 mm. high, panicled; pappus of 2 or 3 short awns.

Pectis linifolia L. *P. punctata* Jacq.

Mazcabmiz (Gaumer). Collected only at Izamal.—A slender erect strong-scented annual, nearly glabrous; leaves linear-lanceo-

late, opposite, sessile, entire, gland-dotted; heads 7–8 mm. high, panicled, yellow, with small rays; pappus of 2 stiff divergent awns.

It is probably a species of *Pectis*, or possibly of *Tagetes*, which is reported from Petén by Maler, with the names "itsimte," "maxtic," and "pericón." He states that the plant has the odor of anise, and is used for flavoring beverages. Pérez lists "itzinte," a plant used to flavor posole, stews, and other dishes.

Pectis prostrata Cav.

Occasional.—A prostrate annual; leaves oblong or oblanceolate, 1–3 cm. long, bristly-ciliate near the base; heads 7 mm. high, in sessile clusters; pappus of 5 thin laciniate scales.

Pectis Schottii (Fernald) Millsp. & Chase, FMB. 3: 143. *pl.* 1904. *P. elongata* var. *Schottii* Fernald, Proc. Amer. Acad. 33: 78. 1897.

Known only from the type, collected at Maxcanú, *Schott 666*.—An erect annual, nearly glabrous, much branched; leaves linear-oblong, gland-dotted; heads 4 mm. high, solitary, slender-stalked; pappus of about 15 slender bristles.

Perymenium Goldmanii Greenm. FMB. 2: 269. 1907.

Known only from the type, collected at Apazote, Campeche, *Goldman 502*.—A shrub; leaves opposite, ovate or lance-ovate, acuminate, crenate-serrate or nearly entire, rough above, hirsute beneath; heads small, yellow, radiate; pappus of several deciduous awns.

Plagiolophus Millspaughii Greenm. in Millsp. & Chase, FMB. 3: 126. *pl.* 1904. *Tithonia tubaeformis* Millsp. FMB. 1: 325. 1896, at least in part, not Cass. *Tridax procumbens* var. *canescens* Millsp. FMB. 1: 325. 1896, not DC.

Occasional; endemic; type from Izamal, *Gaumer 792*.—A branched pubescent erect annual; leaves opposite, petiolate, ovate, crenate-dentate or nearly entire; heads 6–7 mm. high, yellow, without rays; outer phyllaries oblong, leaflike; achenes very variable, some of them winged; pappus of 2 awns.—The genus consists of a single species.

Pluchea camphorata (L.) DC. *P. purpurascens* Millsp. FMB. 1: 52. 1895, 1: 396. 1898, not DC.

Bobche (Gaumer). Frequent on lake shores and in moist fields.—A coarse aromatic herb with angled stems; leaves alternate, oblong-

lanceolate, acute, dentate, glandular-puberulent; flowers rose-purple, the heads 6–7 mm. high, in corymbs; pappus of slender bristles.

Pluchea odorata (L.) Cass. *Eupatorium* Cuevas, Pl. Med. 31, Ilustr. *pl. 35, f. 1.* 1913.

Chalche (Gaumer). Sp. *Santa María.* Common.—A shrub 1–2.5 m. high, grayish-tomentose; leaves elliptic to oblong-ovate, entire or nearly so; flowers pink, the heads 6–7 mm. high.—The plant is employed as a remedy for fevers and amenorrhea. The hot sap is applied as a styptic. Gann reports that the leaves are applied to relieve neuralgic pains, and that an infusion of the leaves is given for rheumatism. The Motul Dictionary states that the "chalche" or "salvia" is a remedy for hoarseness and headache.

Porophyllum macrocephalum DC.

Sp. *Hierba del venado.* Occasional.—An erect glabrous annual; leaves opposite, elliptic, remotely crenate, with large glands along the margin; heads greenish, 2.5 cm. high, without rays; achenes linear, the pappus of slender bristles.

Porophyllum punctatum (Mill.) Blake. *P. nummularium* DC.; *P. Ervendbergii* Millsp. FMB. 1: 396. 1898. *P. Millspaughii* Robinson, FMB. 2: 109. 1900.

Xpechukil (Gaumer), *Ukche* (Cuevas). Common.—A glabrous perennial herb, or somewhat shrubby; leaves oblong or elliptic, obtuse, 1–3.5 cm. long, crenate, glandular on the margin and usually also on the surface; heads 1.5 cm. high, greenish.—The infusion of the plant is employed as a remedy for gonorrhea. The type of *P. Millspaughii* was collected at Progreso, *Millspaugh 1648.*

Pseudelephantopus spicatus (Juss.) Rohr. *Distreptus spicatus* Less.

Occasional.—A coarse erect herb 60 cm. high or less; leaves alternate, sessile, elliptic to oblong, dentate or entire, sparsely pilose; flowers purplish, the heads 4-flowered, spicate; pappus of rigid unequal awns, the 2 lateral ones twice recurved.

Sanvitalia procumbens Lam.

Xkantumbub (Gaumer). Sp. *Sanguinaria, Ojo de gallo.* Common. —A procumbent pubescent annual; leaves opposite, lance-ovate; heads 7–8 mm. high, terminal, the disk dark purple, the rays yellow, persistent; achenes obovate to oblong, tuberculate, those of the ray flowers awned, those of the disk flowers winged.—The plant is a

favorite local remedy for spitting of blood, for dysentery, and generally for diseases of the respiratory system. It is abundant in many places, often forming dense carpets over the ground during the rainy season. The Maya name is reported also as "kantunbub" and "kantumbu."

Sclerocarpus divaricatus (Benth.) Benth. & Hook.

Hulub (Gaumer), *Xiuhulub* (Millspaugh). Frequent.—An erect pubescent branched herb; leaves opposite, petiolate, deltoid to lanceolate, acuminate, coarsely dentate; heads yellow, long-stalked, 1.5–2 cm. high; phyllaries green, oblong-ovate; achenes obovoid, pubescent, with corky tubercles; pappus none.

Senecio confusus Britten. *S. Berlandieri* Hemsl.

Occasional.—A woody vine, glabrous or nearly so; leaves alternate, ovate, acuminate, entire or dentate; heads 1.5–2 cm. high, in leafy panicled cymes, the rays orange; pappus of soft white bristles.

Senecio salignus DC.

Sp. *Jaral amarillo* (Gaumer). Ticul, *Millspaugh 28.*—An erect glabrous shrub; leaves narrowly lanceolate, 5–15 mm. wide, entire or nearly so; heads 8–10 mm. high, the rays bright yellow.

Simsia Chaseae (Millsp.) Blake, Proc. Amer. Acad. 49: 385. 1913. *Encelia Chaseae* Millsp. FMB. 3: 125. *pl.* 1904.

Occasional; endemic; type from Kobah, *Schott 911.*—A coarse branched herb, glandular-hispid; leaves alternate and opposite, ovate-deltoid, acute, dentate; heads 1 cm. high, with showy yellow rays; achenes obovate, pubescent, the pappus of 2 short awns.

Sonchus oleraceus L. *Leontodon Taraxacum* Dondé, Apuntes 10. 1907.

Nabukak (Gaumer). Sp. *Achicoria, Chicoria, Lechuga silvestre.* A common weed, especially about dwellings; native of the Old World.—*Sow-thistle.* An annual herb with milky sap; leaves alternate, lyrate-pinnatifid, spiny-dentate; heads yellow, 1.5 cm. high; achenes compressed, the pappus of soft white bristles.—A decoction of the plant is given as a laxative, depurative, and mild tonic, and for liver affections. The leaves are said to be cooked and eaten. The name "susacque" is reported for the plant from Guatemala.

Spilanthes filipes Greenm. Proc. Amer. Acad. 35: 314. 1900. *S. repens* Millsp. FMB. 1: 53. 1895, not Michx. *S. Beccabunga* Millsp. FMB. 1: 53. 1895, 2: 108. 1900, not DC.

Sp. *Botón de oro.* Frequent; endemic; type from Buena Vista Xbac, *Gaumer 1122.*—A small erect annual, sparsely pubescent, branched; leaves opposite, petiolate, ovate to oblong-lanceolate, dentate; heads 4–5 mm. high, slender-stalked, yellowish, with very short rays; achenes ciliate, the pappus of 2 minute awns.

Spilanthes uliginosa Sw.

Between Zitás and Pisté, *Seler 3976.*—A slender pubescent herb; leaves oval-oblong, scabrous; heads 4 mm. high, slender-stalked, the disk flowers orange, the rays orange-yellow, 2 mm. long.

Spiracantha cornifolia HBK.

Campeche and Yucatan; infrequent.—A low branched herb; leaves alternate, ovate, acute, entire or denticulate, white-tomentose beneath; flowers purple, the heads 1-flowered, in dense clusters; bracts subtending the heads tipped with a short spreading spine; pappus of barbed bristles.

Synedrella nodiflora (L.) Gaertn. *Ucacou nodiflora* Hitchc.

A common weed.—A pubescent annual 1 m. high or less; leaves opposite, ovate or lanceolate, serrate; heads yellow, with small rays, clustered, 9–12 mm. high, the outer phyllaries foliaceous; ray achenes winged, the disk achenes tuberculate, not winged, their pappus of 2 or 3 stiff awns.

Tagetes patula L. *T. tenuifolia* Millsp. FMB. 1: 54. 1895, not Cav.

Xpuhuk (Gaumer); reported as "macenal puhuk." Sp. *Pastora.* Frequent.—A strong-scented erect glabrous annual; leaves pinnately divided, gland-dotted; heads long-stalked, 2.5 cm. high, with orange-yellow rays; achenes linear, the pappus of 5 scales.—In some of the plants all the flowers of the head have well-developed rays, the heads thus being "double." The plant is employed as a remedy for fevers and stomach, liver, and spleen affections, and as a vermifuge. Some of the Yucatan specimens have been referred to *Tagetes remotiflora* Kunze, which is doubtfully distinct from *T. patula.*

Tithonia diversifolia (Hemsl.) Gray.

Chaczuum (Gaumer). Sp. *Arnica.* Frequent.—An herb or shrub, sometimes 4.5 m. high; leaves alternate, 3–5-lobed, scabrous; heads long-stalked, 1.5 cm. high, with large yellow rays; achenes cuneate, the pappus of chaffy scales.

Tithonia rotundifolia (Mill.) Blake. *T. tagetiflora* Desf.; *T. diversifolia* Millsp. FMB. 1: 325. 1896, not Gray.

Zuum (Gaumer); reported also as "tzum." Sp. *Arnica.* Common. —A large annual, sometimes 3 m. high; leaves 3-lobed, rough-puberulent; heads 1.5 cm. high, with long yellow rays; achenes without pappus.—The flowers are reported to yield a fine grade of honey. The name "chioplé" has been reported erroneously for this plant.

Tridax procumbens L.

Sp. *Hierba de San Juan, San Juan del monte.* A common weed.—A small procumbent herb, hirsute; leaves opposite, lanceolate to ovate, serrate; heads long-stalked, 1 cm. high, the rays pale yellow; pappus of plumose awns.—The plant is used in domestic medicine as a refrigerant.

Trixis radialis (L.) Kuntze. *T. frutescens* P. Br.

Tokabal, Tabi; reported as "tokaban" (Valdez). Common in thickets.—A shrub; leaves alternate, ovate or elliptic, entire or nearly so, glabrous or sparsely pubescent; heads yellow, 1.8 cm. high, radiate; achenes linear-oblong, pubescent, the pappus of yellowish bristles.—The plant is reputed to have astringent properties, and is employed in the treatment of gonorrhea, and of intestinal affections in children.

Verbesina myriocephala Schultz Bip. *Montanoa grandiflora* Millsp. FMB. 1: 395. 1898, not Schultz Bip. *V. gigantea* Millsp. & Chase, FMB. 3: 129. 1904, not Jacq.

Frequent.—A large herb or shrub 2.5 m. high; leaves alternate, pinnate-lobed, tomentose beneath; heads 9 mm. high, white, with small rays, in broad dense corymbs; achenes cuneate, compressed, winged, the pappus of 2 slender awns.

Verbesina encelioides (Cav.) Benth. & Hook. is represented by a specimen collected by Gaumer at Izamal in 1888. The plant is not known otherwise from the region. It may have been a waif, or perhaps the label is incorrect.

Vernonia hirsutivena Gleason, Bull. N. Y. Bot. Gard. 4: 175. 1906. *V. arborescens* Millsp. & Chase, FMB. 3: 89. 1904, not Sw.

Sp. *Flor de borla.* Endemic; type from Yot Tsonot, *Gaumer 1325;* without locality, *Gaumer 24120, 23986;* Kancabtsonot, *Gaumer 23540;* Buena Vista, *Gaumer* in 1899.—A shrub or herb 1–1.5 m. high; leaves ovate to oblong, acute, densely pubescent beneath; flowers

pink, the heads 5 mm. high, sessile, in naked one-sided spikes, the lower heads of the spike sometimes bracted; pappus of capillary bristles.—Some of the Yucatan specimens have been determined incorrectly as *V. canescens* HBK. and *V. argyrolepis* Buek.

Vernonia oolepis Blake, Contr. Gray Herb. 52: 20. 1917.

Tamanbub. Endemic; without locality, *Gaumer 24134, 24169;* Kancabtsonot, *Gaumer 23629;* Chichankanab, *Gaumer 23648;* type from Izamal, *Gaumer* in 1886.—A shrub; leaves oblong-lanceolate to obovate, acuminate, pubescent beneath; heads 4-flowered, clustered in small dense cymes.

Vernonia lanceolaris DC. and *V. Schiedeana* Less. have been reported (Millsp. FMB. 1: 50. 1895) from the region on the basis of Johnson specimens, but the determinations and localities are doubtful.

Viguiera dentata (Cav.) Spreng. var. **helianthoides** (HBK.) Blake. *V. helianthoides* HBK.; *Helianthella* sp. Millsp. FMB. 1: 53. 1895.

Tah (Gaumer; reported also as "toh"). Sp. *Romerillo de la costa.* A common weed.—A tall branched herb; leaves opposite and alternate, petiolate, lance-ovate, acute, entire, appressed-pilose beneath; heads long-stalked, 7-8 mm. high, with long yellow rays; achenes cuneate, sericeous, the pappus of 2 awns.—The plant is a local remedy for coughs. It is reported to furnish good forage for horses, and the flowers yield honey of excellent quality. The stems are sometimes tied in bundles and used as torches.

Wedelia trilobata (L.) Hitchc.

Reported from Cozumel Island, *Gaumer* in 1886.—A procumbent herb; leaves opposite, dentate or lobate; heads 8–12 mm. high, with showy yellow rays; achenes oblong, tuberculate.

Xanthium chinense Mill. *X. canadense* Millsp. FMB. 1: 397. 1898, not Mill. *X. strumarium* Millsp. & Chase, FMB. 3: 87. 1904, not L.

Mérida, and Progreso; introduced.—*Cocklebur.* A coarse pubescent annual; leaves alternate, triangular-orbicular, 3–5-lobed, scabrous; fruit ovoid or fusiform, 1–1.5 cm. long, covered with stout hooked spines.

Zexmenia frutescens (Mill.) Blake. *Z. costaricensis* Benth.

Zactah (Gaumer). Frequent.—A shrub, sometimes scandent; leaves opposite, ovate, acuminate, serrate, rough above, strigose or

glabrate beneath; heads 7–12 mm. high, with yellow rays; achenes 3-angled, the pappus of 2 or 3 awns.

Zexmenia hispida Gray var. **ramosissima** Greenm. in Millsp. & Chase, FMB. 3: 127. *pl.* 1904. *Z. hispida* Millsp. FMB. 1: 326. 1896, not Gray. *Aspilia* sp. Millsp. FMB. 1: 53. 1895. *Wedelia hispida* Millsp. FMB. 1: 326. 1896, perhaps not HBK. *Baltimora recta* Millsp. & Loes. BJE. 36: Beibl. 80: 29. 1905, not L.

Zahum (Gaumer). Common; type from Izamal, *Gaumer 410b.*—An erect hispid herb; leaves lanceolate, acuminate, dentate; heads 8 mm. high, yellow; achenes of 2 kinds, those of the rays obcordate, winged, the innermost wingless, tuberculate; pappus none.

Z. trachylepis Hemsl., a synonym of *Z. scandens* Hemsl., was based upon a specimen collected by Johnson in Yucatan or Tabasco.

Zinnia elegans Jacq.

Sp. *Virginia.* Cultivated for ornament; native of Mexico, but probably not of Yucatan.—A coarse annual with opposite entire sessile leaves, and large showy heads of variously colored flowers.

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FIELD MUSEUM OF NATURAL HISTORY
FOUNDED BY MARSHALL FIELD, 1893

PUBLICATION 279

BOTANICAL SERIES VOL. III, No. 3

FLORA OF YUCATAN

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